

CAT Reporting Customer & Account Technical Specifications for Industry Members

1/31/2020

Version 1.0

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Preface

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

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

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

This initial Customer and Account Technical Specification represents the first of a two phase approach to Industry Member reporting of Customer and Account data. The first phase is intended to provide Industry Members with an alternative for the reporting requirements of Large Trader Phase 3 and includes only the subset of required Customer and Account information necessary to capture Large Trader IDs (LTID). Key dates are as noted below. The Participants propose to seek a modification of the requirements of the CAT NMS Plan from the Commission to reflect the phased approach for Industry Member CAT reporting described in these Customer and Account Technical Specifications.

Table 1: Industry Customer & Account Specifications Phased Approach

LTID Phase Production – 12/2020 Compliance Dates: 4/2021 Equity Large Firms and Small OATS Firms 12/2021 Options and Small non-OATS Firms	Full Customer and Account Reporting Go live July 2022
FDID, FDID Account Opening Date, LTID and LTID Effective Date	Remainder of account information and all customer information

Executive Summary

This document describes the requirements for the reporting of customer and account data to CAT by Industry Members, including detailed information about data elements and file submission. It also describes how Industry Members submit files to CAT, including access instructions, network and transport options, and testing requirements. The initial version of the CAT CAIS Reporting Technical Specification only includes information regarding account and Large Trader ID (LTID) data submission, in accordance with the modified timeline to accelerate account and LTID reporting.

A separate companion document containing detailed reporting scenarios entitled CAT CAIS Industry Member Reporting Scenarios should be used as a guide for determining how the field values laid out in this document must be applied when reporting various scenarios for customer and account data.

Table 2: Revision / Change Process

Version	Date	Author	Description
DRAFT 1.0	12/13/2019	Consolidated Audit Trail, LLC	Initial draft
1.0	1/31/2020	Consolidated Audit Trail, LLC	Publication of initial version

1. Introduction

1.1. CAT Overview

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

In accordance with SEC Rule 613, the CAT NMS Plan requires a Central Repository that will comprehensively track orders throughout their lifecycle and identify the Participants and Industry Members handling them, as well as the account holders and authorized traders for any account that originates an order (Customers¹). Specific data elements will be submitted to the Central Repository by Participants, Industry Members, and CAT Reporting Agents. CAT Reporting Agents may be third-party firms reporting on behalf of other entities, or may be outside parties that are not required to submit data to the CAT, but from which CAT may receive data per the CAT NMS Plan, such as the Securities Information Processors (SIPs).

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

The CAT Customer & Account Information System (CAIS) is the separate system for submission of customer and account data. In accordance with the phased approach to data submission, initial CAIS files will only include the account records and elements.

Refer to SEC Rule 613, available at: <https://www.sec.gov/rules/final/2012/34-67457.pdf> for more details.

Refer also to CAT NMS Plan, available at: <https://www.catnmsplan.com/home/about-cat/cat-nms-plan/index.html>.

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

2. CAT Customer & Account Reporting Fundamentals

2.1. Key Data Elements

The sections below describe the key data elements of CAT used in CAT CAIS submission files. In accordance with the phased implementation schedule, only Account data elements are included in the CAIS Technical Specification at this time.

2.1.1. Firm Identifiers in File Submissions

The CAT submissions process relies on certain firm identifiers to determine whose data is being reported, to determine and verify the authorization of the submitter of the data, and to obtain and verify the authorization of the third party that may take action on the data.

CAT Reporter CRD

The CAT Reporter CRD is the Industry Member's Central Registration Depository (CRD) number, used to ensure all account and customer reporting activity of a single Industry Member CAT reporter can be consolidated at the firm level in CAT CAIS.

CAT Submitter ID

The CAT Submitter ID is a CAT assigned identifier for a firm that submits data to CAT. The Submitter ID uniquely identifies the Submitter and may be a different identifier than the CAT Reporter CRD. CAT Reporters may submit data for themselves or may authorize a separate Submitter firm to report on the CAT Reporter's behalf.

Authorization between CAT Reporters and Submitter is granted through a reporting relationship that will be entered by the CAT Reporter using the CAT Reporter Portal. When a file is received, CAT CAIS will verify that the CAT Reporter has authorized the Submitter to submit on their behalf.

2.2. Reference Data

2.2.1. Firm Designated ID (FDID)

FDID is defined in Section 1.1 of the CAT NMS Plan as a unique identifier for each trading account. Industry Members must assign a single FDID to each trading account that is unique within the firm and unique across time (with limited exceptions, such as closed accounts). For example, if an Industry Member uses multiple vendors for reporting, the Industry Member must ensure that the same FDID is

used by all vendors submitting Reportable Events to CAT involving the same unique trading account at the Industry Member.

Examples of what an FDID would represent include:

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

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

2.2.2. Large Trader ID (LTID) and Unknown Large Trader ID (ULTID)

LTID is an identifier assigned by the SEC to a “large trader,” defined as a person whose transactions in NMS securities equal or exceed:

- 2 Million shares or \$20 Million in any single calendar day; OR
- 20 Million shares or \$200 Million in any calendar month

A person qualifying as a large trader is required to submit Form 13H to the Commission, and be assigned an LTID. In accordance with the CAT NMS plan as amended for LTID, CAT Reporter firms are required to report all known LTIDs associated to their FDIDs as part of their customer and account reporting.

In the scenario a CAT Reporter that is a clearing firm determines a person (which includes both natural persons and legal entities under Section 13(h)(8)(e) of the Exchange Act) would qualify as a large trader, but the firm has not yet been provided with an LTID by the person, the clearing firm is required to assign an ULTID to the person until such time as the person provides their LTID. Any CAT Reporter that is a clearing firm with an obligation to assign an ULTID under the large trader rule is required to report any assigned ULTIDs associated to their FDIDs as part of their customer and account reporting. CAT

Reporters that are not self-clearing and do not have an obligation to assign ULTIDs are not required to report ULTIDs to CAT as they will have no such number to report.

Please refer to Section 4 – CAIS Reporting – for information regarding the format requirements of the LTID and ULTID.

2.2.3. FDID Open Date

The FDID open date is included in the CAIS data schema as *fdidDate*. The *fdidDate* field must be populated with either:

- Date in which the account was opened, or
- The Account Effective Date, as defined in Section 1.1 of the Plan, in the following circumstances:
 - The Industry Member has established a trading relationship, but not an account, with an institution or client
 - Proprietary trading accounts of the Industry Member
 - Accounts opened prior to the implementation date of the CAT NMS Plan applicable to the relevant CAT Reporter
 - The Industry Member has acquired another Industry Member and the Account Open Date was changed to a date value on or after the completion of the merger

2.3. Data Types

CAT customer and account data must be reported using JSON text files. Data types used throughout this document are described below. Data types used for CAT customer and account reporting are a subset of the data types used for CAT transaction reporting, with the following differences:

- Text – comma (ASCII decimal 44, hex 2c) is an acceptable character to include in customer and account reporting
- Timestamp – only STRING versions of timestamp are supported in customer and account reporting

To support JSON submissions, the Industry Member Customer & Account Schema (JSON) file is available on the CAT public website that describes each data type with required representation formats.

2.3.1. Data Validation Based on Data Types

All customer and account data submitted to CAT will be validated based on the defined data type of each item, including proper formatting and range checking. Examples of accepted values are detailed in the table below. Valid values for Choice fields are defined in the Data Dictionary for each data element. Valid

data values, ranges, and formats will be specified in the record schema files, which will be used to validate submitted data element values. Records and values that fail validation will be rejected and will be reported as feedback to the Reporter and Data Submitter as detailed in Section 6.

Table 3: Data Types

Data Type	JSON Type	Description
Unsigned	NUMBER	An unsigned value, greater than or equal to zero, with no decimal fraction component, in the inclusive range from 0 to 18,446,744,073,709,551,615 (the same range as a 64-bit unsigned integer).
Alphanumeric	STRING	A string, composed only of letters and digits [a-zA-Z0-9]. When an Alphanumeric type is described, it will include a number, indicating the maximum length of the field. For example, Alphanumeric (7) means that the field can contain up to 7 characters. Alphanumeric values are case sensitive.
Text	STRING	<p>A string, composed of any printable ASCII character between 32 and 126. The string may not include the following characters which serve as delimiters:</p> <ul style="list-style-type: none"> • pipe (ASCII decimal 124, hex 7C), • double quote (ASCII decimal 34, hex 22), and • @ (ASCII decimal 64, hex 40). <p>When a Text data type is described, it will include a number, indicating the maximum length of the field. For example, Text (7) means that the field can contain up to 7 characters. Text values are case sensitive.</p>
Date	NUMBER	An 8-digit integer representing the date in YYYYMMDD.
Timestamp	STRING	<p>A timestamp represents a moment in time. All timestamps must be in Eastern Time (ET).</p> <p>Timestamps formatted as a STRING have a maximum length of 25 and are formatted as 'YYYYMMDD HHMMSS.CCCNNNNNN' with the Date and Time portions, separated by a space (ASCII decimal 32, hex 20) or the letter T (ASCII decimal 84, hex 54).</p> <ul style="list-style-type: none"> • The Date portion must include four-digit year, two-digit month, and two-digit day. Valid values: YYYY = 0000 - 9999, MM = 01 - 12, DD = 01 - 31. • The Time portion must include a two-digit hour, two-digit minute, and two-digit seconds. Valid values: HH = 00 - 23, MM = 01 - 59, SS = 01 - 59, CCC = 000 - 999, NNNNNN = 000000 - 999999. <p>Examples which comply with Timestamp in STRING format:</p> <ul style="list-style-type: none"> • 20190617T000120.000000000 • 20190617T000120 • 20190617T000120.000 • 20170107T213000.123456789 • 20170107 213000.123456789 • 20190617 000120.123000000 <p>Examples which do not comply with Timestamp in STRING format:</p> <ul style="list-style-type: none"> • 20190617T0120

Data Type	JSON Type	Description
		<ul style="list-style-type: none"> 20190617T000120
Name/Value Pairs	OBJECT	<p>An object composed of a list of zero or more attributes where each attribute is either a name with no value, or a name with an accompanying value. Multiple attributes are separated by a delimiter.</p> <p>When represented in JSON, the following rules apply:</p> <ul style="list-style-type: none"> The OBJECT is contained within curly brackets { } Name/Value Pairs are comma separated A value accompanied by a name must be formatted as per the data type syntax required in JSON
Array	ARRAY	<p>A list of 0, 1 or more values of the same data type.</p> <p>When represented in JSON, the following rules apply:</p> <ul style="list-style-type: none"> ARRAY is within a set of brackets [] Elements within the array are comma separated.
Choice	STRING	<p>A Text field with an explicit list of acceptable values. The Data Dictionary section of this document lists the acceptable values for each Choice field.</p>
Multi-Dimensional Array	Multi-Dimensional ARRAY	<p>A compound object that consists of an array of objects. The JSON syntax for this data type is consistent with other Multi-Dimensional Array JSON Types. Multi-Dimensional Array is specified as the data type within the Submissions file as well as the Status response file.</p> <p>When represented in JSON, the following rules apply:</p> <ul style="list-style-type: none"> ARRAY is within a set of brackets [] Each OBJECT contained in the ARRAY is within curly brackets { } Elements within each object are comma separated Conditional elements that do not have a value are not required to be included.

2.3.2. Required, Conditional, and Optional Fields

Throughout this document, record attribute fields will be defined. Each field will be notated with the abbreviation R, C, or O to represent whether it is required, conditional, or optional. This codification will appear within each row of a table describing a field.

Table 4: Include Key

Value	Abbreviation	Description
Required	R	Required for the given record. This field must always be included.
Conditional	C	Conditionally required for the submission, depending upon other values submitted on the account record.
Optional	O	Optional for the given record. May be included at the discretion of the reporter/submitter.

3. Special Reporting Requirements

3.1. Mass Replacement of FDIDs

This section intentionally left blank.

3.2. Mass Transfer of FDIDs across CAT Reporter Firms

This section intentionally left blank.

4. CAIS Reporting

This section describes the attributes for inclusion within the CAIS submission file. The following table lists each record attribute in JSON naming convention, as well as corresponding Data Types, Include Key, acceptable Occurrences, Description, and Format or Accepted Values for a Choice-type attribute.

Table 5: CAIS Reporting

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
version	Text (10)	Main	R	Exactly One per submission file	The version of the CAIS Schema under which the data is reported. Initial version utilized will be 1.0.0	
catReporterCRD	Unsigned	Main	R	Exactly One per submission file	The CRD number assigned to the firm to which the data within the file belongs.	
catSubmitterID	Unsigned	Main	R	Exactly One per submission file	The ID of the CAT Reporting Agent that submitted the file to CAT. In the case the CAT Reporter is submitting data for themselves, they must still populate the CAT Submitter ID field.	
fdidRecordCount	Unsigned	Main	R	Exactly One per submission file	The count of firmDesignatedID attribute occurrences within the file. Used to validate the count of FDID records intended to be submitted within the file matches the count of records present in the file.	
fdidRecordList	Multi-Dimensional Array	Main	C	Zero or One per submission file	Structure for the array of FDID Records that are included in the file. Required if the submission file contains one or more FDID records; not required if no FDID records are included in the file.	

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
fdidRecordID	Unsigned	FDID Record	R	Exactly One per FDID Record	A unique reference to a single FDID for a single submission file.	
firmDesignatedID	Alphanumeric (40)	FDID Record	R	Exactly One per FDID Record	The Firm Designated ID of the Account or Relationship being reported by the CAT Reporting firm.	
fdidType	Choice	FDID Record	R	Exactly One per FDID Record	Representation of the type of record of the reported FDID. Values: ACCOUNT – Account type record RELATIONSHIP – Relationship type record	“ACCOUNT” “RELATIONSHIP”
fdidDate	Date (Number) (8)	FDID Record	R	Exactly One per FDID Record	Date on which the FDID account opened, as defined in Section 2.2.3 of this specification, in YYYYMMDD format.	YYYYMMDD
fdidEndDate	Date (Number) (8)	FDID Record	C	Zero or One per FDID Record	Date on which the Account was closed or the Relationship was ended, in YYYYMMDD format. Must be provided if the fdidEndReason field is populated. NULL is an acceptable value to remove a previously submitted fdidEndDate.	YYYYMMDD NULL
fdidEndReason	Choice	FDID Record	C	Zero or One per FDID Record	Reason why the Account was closed or the Relationship was ended. Must be provided if the fdidEndDate field is populated. Values: CORRECTION – FDID was erroneously reported ENDED – FDID was ended REPLACED – FDID replaced by another FDID within the CAT Reporter Firm. OTHER – Other	“CORRECTION” “ENDED” “REPLACED” “OTHER” NULL

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
					unlisted reason for ending the FDID NULL - NULL is an acceptable value to remove a previously submitted fdidEndReason.	
replacedByFDID	Alphanumeric (40)	FDID Record	C	Zero or One per FDID Record	The new FDID replacing the currently reported FDID, used to provide historical linkage across replaced records over time. Must be provided if the fdidEndReason is REPLACED. NULL is an acceptable value to remove a previously submitted replacedByFDID.	NULL
largeTraderList	Multi-Dimensional Array	FDID Record	C	Zero or One per FDID Record	Structure for the array of LTID records that are associated to the FDID record within the file. Required if the submission file contains one or more LTID records associated to the FDID record; not required if no LTID records are included in the file in association to the reported FDID.	
largeTraderRecordID	Unsigned	Large Trader Record	R	Exactly One per Large Trader Record	A unique reference to a single LTID in reference to a single FDID for a single submission file.	
largeTraderID	Text (13)	Large Trader Record	R	Exactly One per Large Trader Record	The LTID or ULTID associated to the FDID in the CAT Reporter's system.	For LTID – 99999999-9999 For ULTID – ULT999999-9999
ltidEffectiveDate	Date (Number) (8)	Large Trader Record	R	Exactly One per Large Trader Record	Date on which the LTID became associated to the FDID within the CAT Reporter's system, in YYYYMMDD format.	YYYYMMDD
ltidEndDate	Date (Number) (8)	Large Trader	C	Zero or One per Large	Date on which the LTID was no longer	YYYYMMDD NULL

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
		Record		Trader Record	associated to the FDID within the CAT Reporter's system, in YYYYMMDD format. Must be provided if the ltidEndReason field is populated. NULL is an acceptable value to remove a previously submitted ltidEndDate.	
ltidEndReason	Choice	Large Trader Record	C	Zero or One per Large Trader Record	Reason why the LTID was no longer associated to the FDID. Must be populated in order to end date an LTID-to-FDID association in the system. Must be provided if the ltidEndDate field is populated. Values: CORRECTION – LTID was erroneously reported ENDED – LTID-to-FDID association was ended REPLACED – LTID was replaced by a different LTID OTHER – Other unlisted reason for ending the LTID-to-FDID association NULL – Accepted to remove a previously submitted ltidEndReason	"CORRECTION" "ENDED" "REPLACED" "OTHER" NULL
correctionList	Multi-Dimensional Array	Main	C	Exactly One per Submission File	Structure for the array of Correction records within the file. Required if the submission file contains one or more Correction records.	
rejectionID	Unsigned	Correction Record	R	Exactly One per Correction Record	The rejectionID from a prior submission that was created for the particular Data Ingestion error being corrected.	
correctionAction	Choice	Correction	R	Exactly One per Correction	The particular action that is being taken to correct for the prior	"CORRECTION" "DELETE"

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
		Record		Record	rejection. Values: CORRECTION – A new entry is included in the submission file to correct for the prior rejected record using a new firmDesignatedID or new largeTraderID. DELETE – The prior rejection needs to be cleared without a new record being submitted.	
correctingFirmDesignatedID	Alphanumeric (40)	Correction Record	C	Zero or One per Correction Record	The firmDesignatedID within the submission file that is correcting for the prior rejected FDID. Required if the correctionAction is CORRECTION.	
correctingLargeTraderID	Text (13)	Correction Record	C	Zero or More per FDID Record	The LTID or ULTID included within the submission file that is correcting for the prior rejected LTID record. Required if the correctionAction is CORRECTION and the prior error being corrected was against an LTID for the FDID.	For LTID – 99999999-9999 For ULTID – ULT999999-9999

5. Submission Process

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

5.1. File Submissions and Data Formats

CAT CAIS account submissions must include a data file with populated header record information, including Version, CAT Reporter ID, CAT Submitter ID, and FDID Record Count. It is valid and acceptable for a firm to submit a file with only this header information and record counts of zero, indicating an intentional submission of no account record data. Data files have a prescribed naming convention and are supported in JSON format.

5.1.1. File Submission Names

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

```
<CAT Submitter ID>_<CAT Reporter CRD>_<File Generation Date>_<File Kind>_<File Number>.<Format Extension>.<Compression Extension>
```

For example: 123_999_20170101_CAIS_000123.json.bz2

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

Table 6: Elements of a File Submission Name

Field Name	Data Type	Description	Include Key
CAT Submitter ID	Unsigned	CAT Reporting Agent that submitted the file to CAT.	R
CAT Reporter CRD	Unsigned	The CRD assigned identifier of the firm to which the data within the file belongs.	R
File Generation Date	Date	The date the file was generated or reported. Used to guarantee uniqueness of a file across dates. Date must be less than or equal to System Date. Future dates are not acceptable.	R
File Kind	Alphanumeric (20)	Set to 'CAIS'	R
File Number	Unsigned	Sequence number of the file, 6-digits long, left-padded with zeros.	R
Format Extension	Alphanumeric (4)	Represents the format of the data submission. JSON formatted submissions must be 'json'.	R
Compression Extension	Alphanumeric (3)	Applicable to Data Files. Set to 'bz2'	R

3. Data file names should be globally unique among all other data files using the base name (the portion of the file name without the format and compression extensions) of the data file.

5.1.2. Submission Formats

CAT CAIS supports the submission of data in JSON format only, due to the relational nature of the account and customer data.

5.1.3. Data File Submission

The following rules apply to Data Files:

1. The CAT CAIS Processor will support standard JSON syntax for each record or as specified in this document.
2. Data files serve as top-level containers for each object.
3. All data files sent from the CAT Reporter (or the third-party CAT Reporting Agent for the CAT Reporter) must be compressed using BZip2. The associated compression extension is "bz2".
4. Data files must be individually compressed and submitted. Compressed files may not be bundled into a single container file.
5. The data contained within the data file must represent data for the CAT Reporter CRD number identified within the file name.
6. Files submitted through SFTP are limited to a maximum uncompressed size of 100GB.
7. Files sizes <= 1GB are recommended as feedback will be returned faster.
8. Files submitted through the CAT CAIS Reporter Portal are limited to a maximum uncompressed size of 1GB, with a record limit of 100,000 FDID records per file. Files with more than 100,000 FDID records will be rejected.
9. Schema files will be maintained by the Plan Processor and will be versioned as the Technical Specifications change.
10. Data files submitted to CAT CAIS will be treated as Delta files, and updates or changes will only be enacted on records as contained within the submission file; records previously received and not included in a later submission file, or optional or conditional attributes previously received for an FDID and not included in a later submission file, will not be changed in CAT CAIS until included in a subsequent submission file.
11. Conditional and optional fields without a value must be omitted from the submission.
12. In the scenario a Firm needs to clear a previously submitted conditional or optional field value, they must include the field with a NULL value, indicating the intent to clear the prior value.
 - a. If a Firm previously ended an FDID record for a reason other than REPLACED, and the Firm wants to resume submission of the FDID record, they would need to send a NULL value for the *fdidEndDate* and *fdidEndReason* fields.

- b. If the Firm intends to resume submission of an FDID record ended for a reason of REPLACED, the Firm would need to send a NULL value for the *fdidEndDate*, *fdidEndReason*, and *replacedByFDID* fields.
13. Each FDID included in a submission file must contain all required attributes, however optional and conditional attributes are not required to be included unless the Firm intends to modify said attribute.
14. Once an LTID-to-FDID association has passed data validation checks and been accepted by CAT CAIS, the Firm is not required to include the LTID-to-FDID association in subsequent submission files unless the Firm intends to end or modify said LTID-to-FDID association.
15. If an LTID is associated to multiple FDID records within a single CAT Reporter Firm, the LTID-to-FDID association must be submitted for each FDID. The associations may be submitted within a single submission file or across multiple submission files as associations are established.
16. If an LTID becomes associated to an FDID that was previously submitted and accepted by CAT CAIS, the Firm must establish the LTID-to-FDID association by including the FDID in a submission file with all required attributes, and including the LTID within the *largeTraderList* array of the FDID record.
17. If a Firm has previously populated an optional or conditional attribute, and the Firm intends to remove the populated value – such as resubmitting an FDID record previously ended in error – it is acceptable to include the attribute with a NULL value.
18. Data files may contain original submissions, updates to records contained in prior submissions, firm-initiated corrections of records contained in prior submissions, and record error corrections.
19. The *replacedByFDID* value included in a submission file must reference an FDID that is either included in the current submission file or was accepted by CAT CAIS in a prior submission file.
20. If the *replacedByFDID* record in a submission file was not accepted by CAT CAIS in a prior submission file and is not included in the current submission file, or is included in the current submission file but the replacing FDID record does not pass data validation checks, the submission record referencing the replacing FDID will fail data validation and not be accepted by CAT CAIS.
21. The *correctingFirmDesignatedID* and *correctingLargeTraderID* values included in a submission file must reference a corresponding FDID and/or LTID that is either included in the current submission file or was accepted by CAT CAIS in a prior submission file.
22. If the FDID or FDID and LTID listed in the *correctingFirmDesignatedID* or *correctingLargeTraderID* value in a submission file was not accepted by CAT CAIS in a prior submission file and is not included in the current submission file, or is included in the current submission file but the FDID record does not pass data validation checks, the correction submission record referencing the FDID or FDID and LTID record will fail data validation and not be accepted by CAT CAIS.

5.1.3.1. Data File JSON Example

The following JSON example demonstrates how a Firm would structure a data file submission.

```

{
  "version": "1.0.0",
  "catReporterCRD": 123,
  "catSubmitterID": 999,
  "fdidRecordCount": 3,
  "fdidRecordList": [
    {
      "fdidRecordID": 1,
      "firmDesignatedID": "EZAccount123",
      "fdidType": "ACCOUNT",
      "fdidDate": "20190101",
      "largeTraderList": [
        {
          "largeTraderRecordID": 1,
          "largeTraderID": "ULT00001-0001",
          "largeTraderEffectiveDate": "20190501",
        },
        {
          "largeTraderRecordID": 2,
          "largeTraderID": "12345678-0001",
          "largeTraderEffectiveDate": "20190501"
        }
      ]
    },
    {
      "fdidRecordID": 2,
      "firmDesignatedID": "MyTestAccount",
      "fdidType": "ACCOUNT",
      "fdidDate": "20170308",
      "fdidEndDate": "20191201",
      "fdidEndReason": "ENDED",
      "largeTraderList": [
        {
          "largeTraderRecordID": 1,
          "largeTraderID": "99999999-000",
          "largeTraderEffectiveDate": "20190501",
          "largeTraderEndDate": "20191201",
          "largeTraderEndReason": "ENDED"
        }
      ]
    },
    {
      "fdidRecordID": 3,
      "firmDesignatedID": "InternalRel",
      "fdidType": "Relationship",
      "fdidDate": "20150121"
    }
  ]
  "correctionList" [
    {
      "rejectionID": 1127,
      "correctionAction": "CORRECTION",
      "correctingFirmDesignatedID": "EZAccount123",
      "correctingLargeTraderID": "12345678-0001"
    }
  ]
}

```

```

    },
    {
        "rejectionID": 821,
        "correctionAction": "DELETE"
    }
]
}

```

5.1.4. Schema

An Industry Member Schema file that details the structure and expected contents of every CAIS file submission is available on the CAT public website. The schema file will be maintained by the Plan Processor and will be versioned as the account and customer file formats change. The CAT CAIS schema file will use the json schema format as defined at <https://json-schema.org/>.

5.1.4.1. Schema Version

Schema changes will be updated when changes to the CAT Reporting Technical Specifications for Industry Members occur that impact the schema. The following rules apply:

1. The Schema Version is formatted as <Major>.<Minor>.<Patch>. All digits must be represented.
 - **Major** – updated when a change occurs that impacts all or a significant portion of Industry Member CAT Reporters. In such cases, the schema is not backward compatible and will be specified accordingly.
 - **Minor** – updated when a change occurs that does not require coding changes for all Industry Member CAT Reporters. In such cases, the schema is backward compatible with support for previous version(s) as specified.
 - **Patch** – updated when a change occurs that does not require coding changes for any Industry Member CAT Reporters.
2. Records contained in a Data File must be formatted as per the Schema Version noted in the submission file.
3. Feedback provided by CAT CAIS will set the *feedbackVersion* equal to the applicable Schema Version for the submission file.

5.1.4.2. Schema Definition

The schema file is a JSON format file that represents the following:

1. **Data Types** – CAT defined data types containing the following elements:
 - **dataType**: Data Type (E.g. Text) as defined in [Table 3: Data Types](#)
 - **JSONDataType**: JSON standard data type to be used to submit data of this type.

- **maxLength**: Maximum length of the string submission. Applicable to text and alphanumeric types only.
2. **Choices** – For choice data types, the list of possible values.
 3. **Name/Value Pairs** – Field specifications for Name/Value Pair fields.
 - **name**: Field Name.
 - **dataType**: Data Type or an array of Data Types.
 - **JSONDataType**: The JSON standard data type or an array of JSON standard data types.
 - **required**: Indicates whether the field is "Required," "Conditional," or "Optional."

5.2. Connectivity

Connectivity to CAT will be through at least one of the following methods:

- Private Line provided by a Managed Network Service Provider (MNSP)
- AWS PrivateLink²
- CAT Secure Reporting Gateway (SRG) Reporter Portal

Both the Private Line and AWS PrivateLink connectivity methods will support the CAT File Transfer service, which provides access for automated, machine-to-machine file submissions, acknowledgements, rejections, and corrections using the Secure File Transfer Protocol (SFTP) service as well as to the CAT Reporter Portal for interactive reporting through web-based forms or manual file uploads.

The CAT Secure Reporting Gateway (SRG) connectivity method will only support the CAT Report Portal. The SRG requires multi-factor authentication (MFA) to establish a secure, encrypted session before accessing the CAT Reporter Portal. The SRG requires the use of modern browsers supporting HTML5 and TLS (Transport Layer Security). No client software installation is required.

The combinations of Connectivity and Interface Methods are summarized below.

² The AWS PrivateLink service is currently under development. Availability will be announced along with updated instructions on how to leverage PrivateLink for cloud-to-cloud connectivity. Industry Members and CAT Reporting Agents interested in AWS PrivateLink should contact the FINRA Help Desk at 888-696-3348 or at help@finracat.com.

Table 7: Connectivity Methods and Supported CAT Interfaces Methods

Connectivity Methods	Interface Methods	
	CAT File Transfer	CAT CAIS Reporter Portal
Private Line provided by MNSP	Y	Y
AWS PrivateLink	Y	Y
CAT Secure Reporting Gateway (SRG)	N	Y

For a detailed description of the CAT Connectivity Methods, including instructions for establishing access and connectivity to the CAT system, refer to the [FINRA CAT Connectivity Supplement for Industry Members](#).

5.3. CAT Interface Methods

The interface methods available to Industry Members and CAT Reporting Agents to submit data and retrieve reporting feedback include CAT File Transfer and the CAT Reporter Portal. For a detailed description of the CAT Interface Methods, including instructions for establishing access and connectivity to the CAT system, refer to the [FINRA CAT Connectivity Supplement for Industry Members](#).

The following identifies the types of CAT information with the respective interface methods available for each:

Table 8: CAT Data and Feedback Interface Methods

CAT Data Submission and Feedback	Category	SFTP	CAT CAIS Reporter Portal	CAT Reporter Portal
Submission of CAT CAIS files	Submission	✓	✓	
Resubmission of Rejected Files/Records, Corrections and Clears	Submission	✓	✓	
Interactive CAT Reportable Account Entry	Submission		✓	
File Status Retrieval	Feedback	✓	✓	
Reporting Statistics	Feedback		✓	
Error Feedback	Feedback	✓	✓	
CAIS System Status and Announcements	Feedback		✓	
Account Maintenance	Administration			✓
Establishment of Reporting Relationships	Administration			✓

5.3.1. CAT File Transfer

The CAT File Transfer method is an automated, machine-to-machine interface utilizing the Secure File Transfer Protocol (“SFTP”) for file submissions, acknowledgements, rejections and corrections. SFTP enables Industry Members and CAT Reporting Agents to create machine-to-machine connections to securely transmit data and retrieve data from FINRA CAT.

The following is the SFTP directory structure that will be made available in the submitter’s home directory. Files associated with data submissions and associated feedback will be uploaded in SFTP directories as per the following table.

Table 9: SFTP Directories

SFTP Directory	Usage
/submitterID/cat/cais/upload	SFTP submissions uploaded by Submitters including Data files. CAT will move files from this directory for further processing.
/submitterID/cat/cais/feedback	Feedback files associated with submission file processing.

The following rules apply:

1. Processing is initiated when a file appears in the /submitterID/cat/cais/upload directory.
2. CAT will remove files from the upload directory as soon as each file upload is complete.
3. The Submitter must not delete files from the /submitterID/cat/cais/upload directory.
4. Due to the PII considerations of the account and customer data, a copy of uploaded files will not be made available to the Reporter or Submitter after submission.

5.3.2. CAT CAIS Reporter Portal

The CAT CAIS Reporter Portal is a web interface utilizing secure encryption protocols (HTTPS/TLS) and multifactor authentication (MFA). The CAT CAIS Reporter Portal will facilitate data submissions using the following methods:

- Manual data file uploads for files up to 1GB in size and limited to 100,000 FDID records meeting all requirements of data files as specified in 5.1.3.
- Data entry for original submissions, repairs for CAT identified errors, and firm initiated corrections and deletion instructions. These entries will be converted to submission files generated by the portal. Because these files will contain PII data, they will not be available to download after submission.

- The CAT CAIS Reporter Portal will include a summary view screen that contains the record data which will be submitted, allowing users to confirm, and capture for their records, the details of their submission. This display will include the unique Submission ID generated for the submission file generated as part of the process.
- Firms using the CAT CAIS Reporter Portal will not be able to view the full details of the originally submitted record for correction of CAT identified errors for data security. The CAT CAIS Reporter Portal will only display the following attributes regarding the error record, and will require entry of all other data attributes to be included in the submission:
 - ◆ catReporterCRD
 - ◆ catSubmitterID
 - ◆ firmDesignatedID
 - ◆ fdidRecordID
 - ◆ largeTraderRecordID (if error is against a Large Trader record)
 - ◆ rejectionID
 - ◆ errorCodeID

5.4. CAT CAIS Reporting Hours

5.4.1. Submission of CAT Account and Customer Data

The CAT NMS Plan requires Industry Members to report Received Industry Member Data, which includes customer and account data, by 8:00 a.m. Eastern Time on the Trading Day following the day the Industry Member receives such Received Industry Member Data. Customer and Account data may be bulk uploaded at the end of the Trading Day, or may be submitted in batches with associated uploads throughout the day. All creation of, or modifications to, CAT reportable accounts are required to be submitted to CAT CAIS by 8:00 a.m. Eastern Time on the Trading Day following the day such information was received by the Industry Member.

Weekends or any day that all equities or options national securities exchanges are closed are not considered a Trading Day.

5.4.2. Deadline of Repair for Errors Identified by CAT CAIS

For data submitted by 8:00 a.m. ET, errors will be identified by CAT CAIS and provided to Industry Members by no later than 5:00 p.m. ET on the Trading Day such information was submitted to CAT. Once available, repairs can be made immediately. All repairs must be made by 5:00 p.m. ET on the third Trading Day after the account information became available to the Industry Member. Repairs received after the repair deadline will be accepted but considered late.

CAT specifications allow for Industry Members to correct account submissions that did not produce an error during processing at any time after original submission. Firm-initiated corrections will be handled in the same method as any other update to the existing account record.

5.5. Security

5.5.1. Encryption (In-transit)

TLS-based encryption, version 1.2 minimum, is required for connection to the Reporter Portal (whether accessed via private line or the SRG) and to the Security Reporter Gateway itself.

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

5.5.2. Encryption (At-rest)

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

5.5.3. Authentication

Two-factor authentication will be required for access to the CAIS Reporter Portal. The first factor will be username and password which will require periodic rotation.

The second factor will be via push notification to an off-the-shelf application installed on a mobile device provided by the user. The user will be required to install the application to their mobile device through their mobile operating system's application store and then complete a registration process on the Reporter Portal or SRG. There is no cost to the Reporter or the user for this mobile application.

The SFTP service similarly requires that two conditions be met to access the interface. The first factor is authentication via username and password. The second is the use of a defined IP source address that is established during initial onboarding. The SFTP system implements an IP whitelist that prevents access from any system not on the whitelist.

More detailed information related to Security is described in the [FINRA CAT Connectivity Supplement for Industry Members](https://www.catnmsplan.com/registration/) available at <https://www.catnmsplan.com/registration/>.

6. Feedback and Corrections

CAT provides feedback associated with CAT CAIS submissions for CAT Reporters and Submitters as follows:

- **File Status:** available via SFTP and the CAT CAIS Reporter Portal, indicates the acceptance or associated errors with a submission file.
- **Reporting Statistics:** available via the CAT CAIS Reporter Portal, daily summary statistics representing reporting activity and errors for prior submissions. Error Rate is also included.
- **Error Feedback:** available via SFTP and the CAT CAIS Reporter Portal, errors found during processing will be made available, including error code, affected FDID, and associated record ID(s) from the submission file.
- **Corrections Feedback:** available via the CAT CAIS Reporter Portal, information is provided for the repair status of all corrections. When an error has been corrected, the updated status will be reflected.
- **System Status and Announcements:** available via the CAT CAIS Reporter Portal, the status of CAT processing will be made available with a distinction for instances when a processing delay or issue is occurring. Additionally, announcements related to system maintenance and upcoming changes will be presented.

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

6.1. File and Error Feedback

A feedback file will be made available for each submission file that is acknowledged as uploaded. This file will contain information about current status, as well as previously completed steps in the ingestion process. Status related to the following processing steps are expected to be made available within the following timelines:

Table 10: Feedback and Error Correction Availability

Seq	Processing Stage	Status Feedback	Anticipated Delivery	Delivery No Later Than
1	File Acknowledgement	File Acknowledgement Status	Within 10 minutes of File Submission	1 hour of File Submission
2	File Integrity	File Integrity Error Status or File Integrity Passed Status	Within 30 minutes of File Submission	2 hours of File Submission
3	Data Validation	Data Errors including syntax	Within an 1 hour of File	4 hours of File Integrity

Seq	Processing Stage	Status Feedback	Anticipated Delivery	Delivery No Later Than
		and semantic errors	Integrity Feedback	Feedback

6.1.1. Feedback Generation

Feedback associated with all processing stages will be made available via SFTP and/or the CAT CAIS Reporter Portal as described in Table 8: CAT Data and Feedback Interface Methods. A single feedback file will be generated for each file submission, and will be updated with status information as the file completes each stage of processing.

For Feedback files made available via SFTP, the following rules apply:

1. The format of feedback files will be JSON.
2. Feedback files will be accessible under the `cat/cais/feedback` directory in the Submitter's home directory on the Feedback SFTP server.
3. Feedback for data submitted by a CAT Submitter on behalf of a CAT Reporter will be accessible under the CAT Reporter's home directory on the Feedback SFTP server if the CAT Reporter has an SFTP account.
4. If a file is rejected for a file integrity error, it will not proceed to the next processing stage.
5. The minimum retention time for feedback files on the SFTP server is 10 calendar days. After that time, they may be removed from the server. Feedback will be available via the CAT CAIS Reporter Portal for at least 90 days.

6.1.2. Feedback File Names and Format

1. Feedback Files created by CAT CAIS will be named using the following format:

```
<original File Base Name>.<version>.status.<Format
Extension>.<Compression type>
```

Example: SUBID_MYID_20170101_CAIS_000123.v1.status.json.bz2

2. The version will be applied as part of the file generation process to accommodate situations where a single Firm submits multiple files having the same original File Base Name, so that the status file for each version submitted can be retained.

Table 11: Elements of a Status file

Field Name	Data Type	JSON Object	Include Key	Description
version	Text(10)	Main	R	The schema version of the feedback file used for providing the response.
submissionID	Unsigned	Main	R	The unique Submission ID assigned to the submission file by the CAT CAIS system. Used to identify the single submission activity. If the same file name is submitted across multiple submissions, each submission instance will have a separate and unique Submission ID value.
catSubmitterID	Unsigned	Main	R	The unique identifier assigned to the Submitter firm by CAT.
catReporterCRD	Unsigned	Main	R	The unique CRD identifier assigned to the CAT Reporter to whom the data belongs.
submissionStatus	Choice	Main	R	<p>The current status of the submission file in the processing flow.</p> <p>VALUES:</p> <ul style="list-style-type: none"> • FILE_ACKNOWLEDGED – indicates the file was acknowledged as having been submitted, and has picked up for file integrity checks. • FILE_INTEGRITY_PASSED – indicates the file passed file integrity checks, and will now be processed through record data validations. • RECORD_SCAN_COMPLETED – indicates the file has completed record validations. If one or more records passed record validation, they will now be loaded to CAIS. Details about any rejected records are now available within the feedback file in the RejectionItems section. • COMPLETED – indicates the file has completed loading into the CAIS. This does not indicate all records passed validation, only that processing of the file is complete and no further updates will be made to the feedback file. • INTEGRITY_ERROR – indicates the file failed file integrity checks and can not be processed. No further updates will be made to the feedback file upon reaching this status.
integrityErrorCode	Choice	Main	C	Only populated if the submissionStatus is INTEGRITY_ERROR . integrityErrorCode

Field Name	Data Type	JSON Object	Include Key	Description
				will be populated with the error code from Appendix B that caused the error.
receiptTimestamp	Timestamp (String)	Main	R	The time at which the file was acknowledged to have been submitted for processing.
completedTimestamp	Timestamp (String)	Main	C	The time at which the file completed processing, reaching either the COMPLETED or INTEGRITY_ERROR statuses. Only populated after the file has reached a final status.
receivedFDIDRecordCount	Unsigned	Main	C	Total count of FDID Records present within the file. Only populated when the file has reached the interim status of RECORD_SCAN_COMPLETED or the final status of COMPLETED .
successfulFDIDRecordCount	Unsigned	Main	C	Total count of FDID Records processed without record validation errors. Only populated when the file has reached the interim status of RECORD_SCAN_COMPLETED or the final status of COMPLETED .
statusHistory	Name/Value Pair	Main	R	Includes the list of events and corresponding timestamps from file processing. Includes the following Name attributes: <ul style="list-style-type: none"> • FILE_ACKNOWLEDGED • FILE_INTEGRITY_PASSED • RECORD_SCAN_COMPLETED • COMPLETED
rejectionItems	Multi-Dimensional Array	Main	C	Includes the list of records having data validation errors. Only present if at least one record had a data validation error, and only when the file has reached the interim status of RECORD_SCAN_COMPLETED or the final status of COMPLETED .
rejectionID	Unsigned	Rejection Record	C	The unique ID reference for the particular record rejection reported on the FDID within the Submission File.
firmDesignatedID	Alphanumeric(40)	Rejection Record	C	The FDID of the record having the data validation error.
fdidRecordID	Unsigned	Rejection Record	C	A unique numeric reference to the FDID record within the particular submission file.
largeTraderRecordID	Unsigned	Rejection Record	C	A unique numeric reference to the Large Trader record in association to the FDID record within the particular submission file. Only populated on Large Trader rejections.
errorCode	Unsigned	Rejection	C	The error code of the data validation, noting which attribute caused the

Field Name	Data Type	JSON Object	Include Key	Description
		Record		rejection for the FDID record.
rejectionTimestamp	Timestamp	Rejection Record	C	Indicates the time at which the validation error was identified.

6.1.3. JSON Examples of Feedback File for file acknowledgement

The following is an example of a the feedback file after the submission has been acknowledged and accepted for file integrity checks:

Original File Submission File Name	123_456_20170307_CAIS_000123.json.bz2
Feedback File Name	123_456_20170307_CAIS_000123.v1.status.json.bz2
Feedback File Contents	<pre>{ { "version": "1.0.0", "submissionID": 7, "submitterID": 123, "catReporterID": 456, "submissionStatus": "FILE_ACKNOWLEDGED", "receiptTimestamp": "20191123T152233.000045", "statusHistory": { "FILE_ACKNOWLEDGED": "20191123T152233.000045" } } }</pre>

6.2. File Integrity

During the File Integrity processing stage, the submission file contents are also validated to ensure they are readable and formatted as expected.

The following rules apply:

1. Data filenames which duplicate prior submissions accepted during File Integrity will reject, unless the original file had a file integrity error.
2. Data files which are not readable will reject.
3. Data files which include inaccurate counts of records will reject.
4. The CAT Submitter ID of the data file must be equal to the Submitter ID of the submitter that sent the files (as determined from SFTP or CAT CAIS Reporter Portal username).
5. The CAT Reporter CRD within the filename must match the CAT Reporter CRD populated in the data file.

6. If the CAT Submitter is reporting on behalf of the CAT Reporter, a Reporting Relationship must be effective.

6.2.1. JSON Examples for File Integrity Feedback

File Submission Integrity Success:

Original File Submission File Name	123_456_20170307_CAIS_000123.json.bz2
Feedback File Name	123_456_20170307_CAIS_000123.v1.status.json.bz2
Feedback File Contents	<pre>{ { "version": "1.0.0", "submissionID": 7, "submitterID": 123, "catReporterID": 456, "submissionStatus": "FILE_INTEGRITY_PASSED", "receiptTimestamp": "20191123T152233.000045", "statusHistory": { "FILE_ACKNOWLEDGED": "20191123T152233.000045", "FILE_INTEGRITY_PASSED": "20191123T152234.123245" } } }</pre>

File Submission Integrity Error:

Original File Submission File Name	123_456_20170307_CAIS_000123.json.bz2
Feedback File Name	123_456_20170307_CAIS_000123.v1.status.json.bz2
Feedback File Contents	<pre>{ { "version": "1.0.0", "submissionID": 7, "submitterID": 123, "catReporterID": 456, "submissionStatus": "INTEGRITY_ERROR", "integrityErrorCode": "21007", "receiptTimestamp": "20191123T152233.000045", "completedTimestamp": "20191123T152721.023423", "statusHistory": { "FILE_ACKNOWLEDGED": "20191123T152233.000045" } } }</pre>

6.3. Data Ingestion

During Data Ingestion, records within the Data file are validated. Validations to ensure correct syntax and semantics associated with record length, field length, data type, non-null and reference data checks are performed. Validations are initiated by the record type of every record contained in the file. Ingestion feedback will be provided with reference to any and all records that have validation errors.

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

The following rules apply:

1. File Ingestion feedback will be generated for every submission file passing file integrity checks.
2. Any record within a Data File determined to be malformed or otherwise invalid will be individually rejected, and will not cause a rejection of the full file.
3. When a record is readable and can be parsed, Ingestion validations will occur for every field within the record.
4. One or more errors may be found within a record.
5. Each error identified against a single FDID record will be listed separately within the status file.
6. The original record reported to CAT CAIS will not be included in the feedback file. The feedback file will instead include the RecordID and FDID of the record having the error.
7. Records that are not rejected during Ingestion will be imported into the CAT CAIS.
8. If an FDID record passes validation, but contains one or more errors on associated LTIDs, the FDID record will be imported into the CAT CAIS. The associated LTID with the error will not be imported into the CAT CAIS.

6.3.1. JSON Examples for Data Ingestion Feedback

Data File Submission Ingestion Success:

Original File Submission File Name	123_456_20170307_CAIS_000123.json.bz2
Meta Feedback File Name	123_456_20170307_CAIS_000123.v1.status.json.bz2
Feedback File Contents	<pre>{ { "version": "1.0.0", "submissionID": 7, "submitterID": 123, "catReporterID": 456, "submissionStatus": "COMPLETED", "receiptTimestamp": "20191123T152233.000045", "completedTimestamp": "20191123T152721.023423", "receivedRecordCount": 100, "successfulRecordCount": 100,</pre>

	<pre> "statusHistory": { "FILE_ACKNOWLEDGED": "20191123T152233.000045", "FILE_INTEGRITY_PASSED": "20191123T152234.123245", "RECORD_SCAN_COMPLETED": "20191123T152255.324392", "COMPLETED": "20191123T152721.023423" } } </pre>
--	--

Data File Submission Ingestion Error:

Original File Submission File Name	123_456_20170307_CAIS_000123.json.bz2
Meta Feedback File Name	123_456_20170307_CAIS_000123.v1.status.json.bz2
Feedback File Contents	<pre> { { "version": "1.0.0", "submissionID": 7, "submitterID": 123, "catReporterID": 456, "submissionStatus": "FILE_ACKNOWLEDGED", "receiptTimestamp": "20191123T152233.000045", "completedTimestamp": "20191123T152721.023423", "receivedRecordCount": 100, "successfulRecordCount": 99, "statusHistory": { "FILE_ACKNOWLEDGED": "20191123T152233.000045", "FILE_INTEGRITY_PASSED": "20191123T152234.123245", "RECORD_SCAN_COMPLETED": "20191123T152255.324392", "COMPLETED": "20191123T152721.023423" } }, "rejectionItems": [{ "rejectionID": 1127, "firmDesignatedID": "ABC123", "fdidRecordID": 4, "largeTraderRecordID": 2, "errorCode": "22012", "rejectionTimestamp": "20191123T152221.023423" }] } </pre>

6.4. Corrections

Errors found during CAT CAIS processing and found by CAT Reporters subsequent to transmission must be repaired. The reporting of Error Corrections is facilitated in CAT CAIS through submissions via SFTP and the CAT CAIS Reporter Portal. Firm-initiated corrections of data that had been accepted in prior CAT CAIS submissions are acceptable at any time, and will be processed the same as any other update to the

original record. The new data provided on the corrected record will update the currently stored record in CAT CAIS in place.

The following scenarios will be detailed below for how data can be corrected:

- Correction or Clearing of a CAT CAIS Submission File having a File Integrity Error
- Correction or Deletion of an FDID record failing FDID format validation
- Correction or Deletion of an LTID record failing LTID format validation
- Correction or Deletion of an FDID record failing one or more Data Validation errors – other than FDID format validation
- Correction or Clearing of an LTID record failing one or more Data Validation errors – other than LTID format validation

6.4.1. File Integrity Errors

A File Integrity Error resulting in the inability to process a particular Submission File can be corrected by either of the following methods:

- Submission of a new file having the same Submission File Name, with corrected data that passes File Integrity checks; OR
- Submission of a new file having the same Submission File Name, with only the header information containing the version, catReporterID, catSubmitterID, and zero values for the fdidRecordID and largeTraderCount, indicating a deletion of the prior submission

If a file is received having the same Submission File Name as a prior submission that did not have a File Integrity Error, the new submission file will be rejected as a File Integrity Warning, alerting the firm that they have reused the same Submission File Name as a file that was previously accepted by CAT CAIS. The firm does not have to take further action to correct for this submission file, however please be advised that the data included in the submission file will not be processed through Data Validation nor accepted into CAT CAIS.

6.4.2. Data Validation Errors

6.4.2.1. Missing or Invalid firmDesignatedID and largeTraderID Values

In order to support historical correction tracking and lineage of replacements, records failing Data Validation for a Missing or Invalid FDID or LTID value may be corrected through either of the following methods:

- Submission of a CORRECTION action within the *correctionsList* section of the Submission File, having a reference to the FDID or LTID that corrects for the prior failed record; OR
- Submission of a DELETE action within the *correctionsList* section of the Submission File, indicating no record is required to be submitted in place of the prior record failing validation

In the CORRECTION scenario, the replacing record must be included within the current Submission File and pass all data validation checks, or the replacing record must have been accepted by CAT CAIS in a prior submission. If the correction action is for an LTID, the corresponding FDID and LTID having the correction must likewise be included in the current Submission File without a data validation error, or have been accepted by CAT CAIS in a prior submission.

If the referenced correction record fails Data Validation for the format of its FDID or LTID value, a separate rejection will be created against the replacement record, and the original rejection will remain open for correction. If the reference correction record passes Data Validation for format of the FDID or LTID, the original rejection will be closed as corrected, even if the FDID or LTID record fails a separate Data Validation; however a new rejection will be recorded and tracked against the timeline for correction of the original error.

6.4.2.2. Data Validation Errors

If a submission record fails Data Validation checks for any reasons other than the format of the FDID or LTID value, rejections can be corrected by submitting the same FDID, or FDID and LTID combination, with corrected data. If the new submission fails for the same data validation, a new rejection will not be created and the timeline for correction of the original error will remain. If the new submission fails validation against a separate attribute, the original rejection will be closed as corrected, and a new rejection will be created for the separate attribute validation failure; however the new rejection will be tracked against the timeline for correction of the original error.

7. Testing

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

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

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

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

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

8. Additional Information

8.1. Public Website

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

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

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

Appendices

Appendix A: Change Release Management Process

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

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

Appendix B: Error Codes

This section defines the error and warning codes generated by CAT CAIS. Each code is defined to include the reason for the error or warning, including the associated fields. Warnings are not subject to further processing and firms are not required to take any action on them. Codes are assigned in ranges to represent similar types of errors within the same range, related by validation type and/or by linkage type. Codes are organized by the CAT Processing stages including:

- File Integrity
- Data Ingestion

B.1 File Integrity Errors

The table below contains error messages that are associated with file integrity. Errors are associated with files, filenames, and metadata within submission files such as record count.

Table 12: File Integrity Errors

Error Code	Error Code Description	Explanation	Error/Warning
21001	Duplicate File	A file with the same base name was previously accepted by CAT.	Warning
21002	Missing or Invalid CAT Submitter ID	CAT Submitter ID is missing or invalid.	Error
21003	Missing or Invalid CAT Reporter CRD	CAT Reporter CRD is missing or is not a valid Market Participant for the Generation Date.	Error
21004	Missing or Invalid File Generation Date	File Generation Date is missing or is not a valid date.	Error
21005	File exceeds the supported size limit	File size exceeds the maximum uncompressed size of 100 GB via SFTP and 1GB via the CAT CAIS Reporter Portal.	Error
21006	Unauthorized CAT Submitter ID	CAT Submitter ID has not been authorized to submit for the CAT Reporter CRD. Verify that the CAT Submitter ID and CAT Reporter CRD in the file name have a transmitting relationship.	Error
21007	Missing or Invalid FDID record count	The FDID record count in the submission file is missing or is a negative number, does not match the count of FDID records within the file, or is a non-zero number for DEL file.	Error
21008	Missing or Invalid File Version	File Version in submission file is missing or invalid.	Error
21009	File exceeds maximum records allowed for Web upload	A single data file uploaded via the Reporter Portal must not contain more than 100,000 FDID records.	Error

B.2 Data Validation Errors

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

Table 13: CAT CAIS Validation Errors

Error Code	Error Code Description	Explanation	Warning/Error
22001	Missing or Invalid <i>firmDesignatedID</i>	<i>firmDesignatedID</i> must be present and populated for each account record within the file. Affected record will not be processed for further validation checks.	Error
22002	Duplicated <i>firmDesignatedID</i>	Each <i>FirmDesignatedID</i> must be present in the submission file only once. Affected records will not be processed for further validation checks.	Error
22003	Missing or Invalid <i>fdidRecordID</i>	<i>fdidRecordID</i> must be present and populated for each account record within the file. Affected record will not be processed for further validation checks.	Error
22004	Duplicated <i>fdidRecordID</i>	Each <i>fdidRecordID</i> must be present in the submission file only once. Affected records will not be processed for further validation checks.	Error
22005	Missing or Invalid <i>fdidType</i>	<i>fdidType</i> must be present and populated with one of the allowable values.	Error
22006	Invalid format of <i>fdidCreateDate</i>	When populated, <i>fdidCreateDate</i> must be in the correct format.	Error
22007	Missing or Invalid format of <i>fdidDate</i>	<i>fdidDate</i> must be populated in the correct format.	Error
22008	Missing or Invalid <i>fdidEndDate</i>	When populated, <i>fdidEndDate</i> must be in the correct format. Must be populated if <i>fdidEndReason</i> is populated.	Error
22009	<i>fdidEndDate</i> set prior to <i>fdidDate</i>	When populated, <i>fdidEndDate</i> must be equal to or later than <i>fdidDate</i> .	Error
22010	Missing or Invalid <i>fdidEndReason</i>	When populated, <i>fdidEndReason</i> must use one of the allowable values. Must be populated if <i>fdidEndDate</i> is populated.	Error
22011	Missing <i>replacedByFDID</i>	<i>replacedByFDID</i> must be populated if <i>fdidEndReason</i> is set to REPLACED.	Error
22012	Invalid format of <i>largeTraderID</i>	When populated, <i>largeTraderID</i> must be in the correct format for either a Large Trader ID or an Unknown Large Trader ID.	Error
22013	Missing or Invalid <i>largeTraderRecordID</i>	<i>largeTraderRecordID</i> must be present and populated for each Large Trader record within the file.	Error
22014	Duplicated <i>largeTraderRecordID</i>	Each <i>largeTraderRecordID</i> reported for a single FDID record within the file must be present only once.	Error
22015	Missing or Invalid <i>largeTraderEffectiveDate</i>	<i>largeTraderEffectiveDate</i> must be populated in the correct format.	Error
22016	Missing or Invalid	When populated, <i>largeTraderEndDate</i> must be in the correct format. Must be populated if	Error

Error Code	Error Code Description	Explanation	Warning/Error
	<i>largeTraderEndDate</i>	<i>largeTraderEndReason</i> is populated.	
22017	Missing or Invalid <i>largeTraderEndReason</i>	When populated, <i>largeTraderEndReason</i> must use one of the allowable values. Must be populated if <i>largeTraderEndDate</i> is populated.	Error
22018	Unknown Attribute Name	The record contains an attribute that is not known under the reported specification version.	Error
22019	Missing or Invalid <i>rejectionID</i>	When populated, the <i>rejectionID</i> must be a known <i>rejectionID</i> for the <i>catReporterID</i> whose data is included in the submission file.	Warning
22020	Missing or Invalid <i>correctionAction</i>	When populated, <i>correctionAction</i> must use one of the allowable values. Must be populated if <i>rejectionID</i> is populated.	Warning
22021	Missing or Invalid <i>correctingFirmDesignatedID</i>	When populated, <i>correctingFirmDesignatedID</i> must reference a <i>firmDesignatedID</i> that is included in the current submission file or was accepted by CAT CAIS in a prior submission.	Warning
22022	Missing or Invalid <i>correctingLargeTraderID</i>	When populated, <i>correctingLargeTraderID</i> must reference a <i>largeTraderID</i> that is included in the current submission file for a <i>firmDesignatedID</i> included in the current file, or that was accepted by CAT CAIS in a prior submission.	Warning

Appendix C: Glossary

CAT Reporter CRD	The CAT Reporter CRD is the Central Registration Depository identifier that an Industry Member uses to report CAT account and customer data.
CAT Submitter ID	The CAT Submitter ID is the identifier of the CAT Reporting Agent, the entity authorized to submit the files to CAT on behalf of the Industry Member.
CAT Trading Day	<p>CAT Trading Day for Industry Members is defined as beginning immediately after 4:15:00PM and no fractions of a second Eastern Time on one trade date and ending at exactly 4:15:00PM and no fractions of a second Eastern Time on the next trading date.</p> <p>Weekends or any day that all equities or options national securities exchanges are closed are not considered a CAT Trading Day.</p> <p>Trading Days that close early end 15 minutes after the Market Close.</p>
FDID	<p>FDID is defined in Section 1.1 of the CAT NMS Plan as "a unique identifier for each trading account designated by Industry Members for purposes of providing data to the Central Repository."</p> <p>See CAT FAQ M2 for more information on the prohibition on use of actual account numbers. Refer to the CAT Industry Presentation on FDID for additional information.</p>
Account Opening Date	Account Opening Date is defined in the CAT NMS Plan. For account data submission, Account Opening Date is to be reported as <i>fdidDate</i> within the submission file.
Trade Date	<p>Trade Date for Industry Member is defined as beginning immediately after 23:59:59.999999 ET on Trade Date T - 1 and up to 23:59:59.999999 ET of the next Trade Date T.</p> <p>Weekends and holidays are not considered a Trade Date.</p>

Appendix D: Data Dictionary

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
catReporterCRD	Unsigned	Main	R	Exactly One per submission file	The CRD number assigned to the firm to which the data within the file belongs.	
catSubmitterID	Unsigned	Main	R	Exactly One per submission file	The ID of the CAT Reporting Agent that submitted the file to CAT. In the case the CAT Reporter is submitting data for themselves, they must still populate the CAT Submitter ID field.	
correctingFirmDesignatedID	Alphanumeric (40)	Correction Record	C	Zero or One per Correction Record	The firmDesignatedID within the submission file that is correcting for the prior rejected FDID. Required if the correctionAction is CORRECTION.	
correctingLargeTrade rID	Text (13)	Correction Record	C	Zero or More per FDID Record	The LTID or ULTID included within the submission file that is correcting for the prior rejected LTID record. Required if the correctionAction is CORRECTION and the prior error being corrected was against an LTID for the FDID.	For LTID – 99999999-9999 For ULTID – ULT99999-9999
correctionAction	Choice	Correction Record	R	Exactly One per Correction Record	The particular action that is being taken to correct for the prior rejection. Values: CORRECTION – A new entry is included in the submission file to correct for the prior rejected record using a new	“CORRECTION” “DELETE”

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
					firmDesignatedID or new largeTraderID. DELETE – The prior rejection needs to be cleared without a new record being submitted.	
correctionList	Multi-Dimensional Array	Main	C	Exactly One per Submission File	Structure for the array of Correction records within the file. Required if the submission file contains one or more Correction records.	
fdidDate	Date (Number) (8)	FDID Record	R	Exactly One per FDID Record	Date on which the FDID account opened, as defined in Section 2.2.3 of this specification, in YYYYMMDD format.	YYYYMMDD
fdidEndDate	Date (Number) (8)	FDID Record	C	Zero or One per FDID Record	Date on which the Account was closed or the Relationship was ended, in YYYYMMDD format. Must be provided if the fdidEndReason field is populated. NULL is an acceptable value to remove a previously submitted fdidEndDate.	YYYYMMDD NULL
fdidEndReason	Choice	FDID Record	C	Zero or One per FDID Record	Reason why the Account was closed or the Relationship was ended. Must be provided if the fdidEndDate field is populated. Values: CORRECTION – FDID was erroneously reported ENDED – FDID was ended REPLACED –	“CORRECTION” “ENDED” “REPLACED” “OTHER” NULL

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
					FDID replaced by another FDID within the CAT Reporter Firm. OTHER – Other unlisted reason for ending the FDID NULL - NULL is an acceptable value to remove a previously submitted fdidEndReason.	
fdidRecordCount	Unsigned	Main	R	Exactly One per submission file	The count of firmDesignatedID attribute occurrences within the file. Used to validate the count of FDID records intended to be submitted within the file matches the count of records present in the file.	
fdidRecordID	Unsigned	FDID Record	R	Exactly One per FDID Record	A unique reference to a single FDID for a single submission file.	
fdidRecordList	Multi-Dimensional Array	Main	C	Zero or One per submission file	Structure for the array of FDID Records that are included in the file. Required if the submission file contains one or more FDID records; not required if no FDID records are included in the file.	
fdidType	Choice	FDID Record	R	Exactly One per FDID Record	Representation of the type of record of the reported FDID. Values: ACCOUNT – Account type record RELATIONSHIP – Relationship type record	“ACCOUNT” “RELATIONSHIP”
firmDesignatedID	Alphanumeric (40)	FDID Record	R	Exactly One per FDID	The Firm Designated ID of	

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
				Record	the Account or Relationship being reported by the CAT Reporting firm.	
largeTraderID	Text (13)	Large Trader Record	R	Exactly One per Large Trader Record	The LTID or ULTID associated to the FDID in the CAT Reporter's system.	For LTID – 99999999-9999 For ULTID – ULT99999-9999
largeTraderList	Multi-Dimensional Array	FDID Record	C	Zero or One per FDID Record	Structure for the array of LTID records that are associated to the FDID record within the file. Required if the submission file contains one or more LTID records associated to the FDID record; not required if no LTID records are included in the file in association to the reported FDID.	
largeTraderRecordID	Unsigned	Large Trader Record	R	Exactly One per Large Trader Record	A unique reference to a single LTID in reference to a single FDID for a single submission file.	
ltidEffectiveDate	Date (Number) (8)	Large Trader Record	R	Exactly One per Large Trader Record	Date on which the LTID became associated to the FDID within the CAT Reporter's system, in YYYYMMDD format.	YYYYMMDD
ltidEndDate	Date (Number) (8)	Large Trader Record	C	Zero or One per Large Trader Record	Date on which the LTID was no longer associated to the FDID within the CAT Reporter's system, in YYYYMMDD format. Must be provided if the ltidEndReason field is populated. NULL is an acceptable value	YYYYMMDD NULL

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
					to remove a previously submitted ltidEndDate.	
ltidEndReason	Choice	Large Trader Record	C	Zero or One per Large Trader Record	Reason why the LTID was no longer associated to the FDID. Must be populated in order to end date an LTID-to-FDID association in the system. Must be provided if the ltidEndDate field is populated. Values: CORRECTION – LTID was erroneously reported ENDED – LTID-to-FDID association was ended REPLACED – LTID was replaced by a different LTID OTHER – Other unlisted reason for ending the LTID-to-FDID association NULL – Accepted to remove a previously submitted ltidEndReason	“CORRECTION” “ENDED” “REPLACED” “OTHER” NULL
rejectionID	Unsigned	Correction Record	R	Exactly One per Correction Record	The rejectionID from a prior submission that was created for the particular Data Ingestion error being corrected.	
replacedByFDID	Alphanumeric (40)	FDID Record	C	Zero or One per FDID Record	The new FDID replacing the currently reported FDID, used to provide historical linkage across replaced records over time. Must be provided if the fdidEndReason is REPLACED. NULL is an	NULL

Field Name	Data Type	JSON Object	Include Key	Occurrences	Description	Format/ Accepted Values
					acceptable value to remove a previously submitted replacedByFDID.	
version	Text (10)	Main	R	Exactly One per submission file	The version of the CAIS Schema under which the data is reported. Initial version utilized will be 1.0.0	