FR Y-14Q Technical Submission Instructions

Contents

1. FR Y-14 Data XML Submission Overview 3
1.1. File Format 3
1.2. File Header 3
1.3. Primary Keys 3
1.4. Data Elements 4
1.5. Submission 4
1.6. File Name 4
1.7. Common File Load Issues 5
1.8. Version Conventions 5
2. FR Y-14 Respondent Edit Report Overview 5
2.1. File Format 5
2.2. File Header 5
2.3. Primary Keys 6
2.4. Common File Load Issues 6
2.5. Submission 6
2.6. Naming Conventions 6
2.7. Pre-Submitting Respondent Edit Reports 6
3. FR Y-14 Edit Documentation 6
3.1. Version 7
3.2. Edits and Data Dictionary Status 7
3.3. Edit Type 7
3.4. Quarter Modified Date 8
3.5. Start Date 8
3.6. End Date 9
Appendix A: Transtype Details 10
Initial Data Submissions 11
Submissions that Fail to Load/File Load Issues 11
Revised Submissions 11
Appendix B: XML Validation 12

Excel XML Validation 12
XML File Creation 12
Example 1: Single Table XML 13
Example 2: Multiple Table XML 16

1. FR Y-14 XML Data Submission Overview

This section outlines technical instructions for submitting FR Y-14 data. This document covers the file format and other technical specifications. This document is meant to supplement the Capital Assessments and Stress Testing information collection (Reporting Form FR Y-14) Instructions. Often, submissions that do not comply with the technical instructions cannot be loaded into the system and will require a resubmission.

1.1. File Format

Respondents must submit FR Y-14 data in Extensible Markup Language (XML). Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a common format that can be shared in a consistent way.

An accompanying XML Schema Definition (XSD) describes the elements of each XML submission. An XML Schema Definition (XSD) describes a set of rules to which an XML document must conform in order to be considered valid according to that schema. XSD describes the structure of an XML document.

The XSD items are defined in string format to allow for data types beyond those defined in the data dictionary. This is done to prevent restricting data types in the submission process. The data submitted should still comply with the data formats provided in the data dictionaries that are distributed with the technical instructions. Any data elements that do not comply with the Field Type and Attributes may need to be revised.

Master XSDS are provided which should be used for all current and historic submissions. Institutions should only populate the data items that are applicable for the report form instructions from the as- of date. For example, if the institution is submitting data historically for 2012 Q2 during the 2015 Q1 processing period, the institution should use the 2012 Q2 report form instructions in conjunction with the 2015 Q1 version of the XSD.

Master XSDs contain all data collection items for a given schedule since the transition to The Federal Reserve Statistics Function, including ended items. Institutions should use these XSDs going forward for all current and historic submissions. Institutions should only populate the data items that are applicable for the report form instructions from the as-of date. Any non-applicable items for a specific as-of date should be left null.

1.2. File Header

XML file headers must include DATA_ASOF_TSTMP while LAST_ASOF_TSTMP is optional. Please see Appendix B: XML Validation for additional information.

1.3. Primary Keys

Primary keys are required to distinguish records as unique. Primary keys can be determined for each schedule by referring to the data dictionary. Primary keys are non-nullable fields and must be completed. We recommend that if an institution does not have data to report on a specified table, these items are left out of the submission rather than reporting “N/A” for primary keys. In the data dictionary, these fields are determined with “Yes” values in the “Primary Key” column. The data dictionary lists the format the primary keys must be in for files to successfully load.

Common primary keys across schedules include:

- ID_RSSD
- D_DT (With the exception of Retail which has Reporting Month instead)
- TRANSTYPE

ID_RSSD must be the unique identifying number assigned by the Federal Reserve.

D_DT and DATA_ASOF_TSTMP must be provided in "Date_Time" format 'YYYY-MM-DDThh:mm:ss' or 'YYYY-MM-DDThh:mm:ss.mmm'

- YYYY represents the year
- MM represents the month
- DD represents the last day of the reporting month
- T represents the start of the required time section
- hh represents the hour
- mm represents the minute
- ss represents the second
- mmm represents the millisecond

For example, the June 2013 reporting period would be represented as '2013-06-30T00:00:00' or '2013-06-30T00:00:00.000'. Note, the time portion of the D_DT must be all zeros while DATA_ASOF_TSTMP can be a value other than 0 such as TXX:XX:XX or TXX:XX:XX.XXX where the X indicates a value other than 0.

There cannot be multiple D_DTs in a single submission. A file will fail to load if there is more than one D_DT in a given file.

TRANSTYPE must be provided in one of three ways; I, U, or D. See Appendix A: Transtype Details for additional information.

- "I" indicates an insert of a new data record.
- "U" indicates an update to an existing data record.
- "D" indicates a delete to an existing data record.

1.4. Primary Keys

DATA_ASOF_TSTMP should be populated with the date and time the file was created in date time format 'YYYY-MM-DDThh:mm:ss' or 'YYYY-MM-DDThh:mm:ss.mmm', which is provided above. (This format also applies to LAST_ASOF_TSTMP, which is an optional attribute.)

Each schedule has an XSD that contains all data elements collected since being processed through the Federal Reserve's Statistics function. Respondents can utilize the most recent XSD for both historical and current submissions and submit applicable data items per the instructions of the submission date using the FR Y-14 instructions of the respective as of date.

Items should be reported as 0 instead of 0.000000. If an item is not applicable to your submission the field should be left null.

1.5. Submission

The XML file should be uploaded through the IntraLinks system as an Official Template according to the corresponding schedule. All XML files loaded to the main submission folder with the metadata tag “Submission Type = Y-14 Schedule” will be automatically loaded to the database. When test files are submitted, please ensure test files are loaded to the appropriate "Test" folder within the Intralinks Exchange. Test files that are incorrectly uploaded to the official submission folder may cause processing delays.

If two files need to be loaded in a certain order, we recommend that the file that needs to be loaded first is uploaded to Intralinks at least 30 minutes before the second file is submitted. See Intralinks technical guidance for more information on how files should be uploaded.

1.6. File Name

The Intralinks instructions should be used for data file naming guidance.

1.7. Common File Load Issues

- Incorrectly formatted record headers.
- Not using the most recent XSD provided.
- Incorrect transtype provided.
- DateTime fields incorrectly formatted.
- Null or missing primary keys.
- Duplicate records with identical primary keys.
- Incorrect ID_RSSD.
- Incorrect D_DT.

1.8. Version Conventions

The technical instructions are published with a naming convention designed to identify changes between publications. The file names contain the version number. In addition, the header of each document contains the Collection Period and the version number. If technical instructions are republished within a quarter, only the documents that were modified will be updated from a “V1” to a “V2”. All documents that were not modified in the republication will remain “V1”.

- Examples
  - File name for the first version of published technical instructions will end in “_V1”.
  - File name for the second version of the published technical instruction for a document that has been modified will end in “_V2”

2. FR Y-14 Respondent Edit Report Overview

This section outlines technical instructions for how to provide FR Y-14 Respondent Edit Reports. The document covers the file format and other technical specifications. This document is intended to supplement the IntraLinks technical guidance. Often, submissions that do not comply with the technical instructions cannot be loaded into the system and will require a resubmission.

2.1. File Format

Respondents must submit each Respondent Edit Report via comma separated value (.CSV). When applicable, a Statistics Reserve Bank contact will send a password protected Respondent Edit

Report in Excel (.xls/.xlsx) format. Respondents must enter responses and save the file as a CSV. To do this, select File > Save As > Save as Type and select "CSV (Comma delimited)" from the drop down menu.

2.2. File Header

The first line of the file should have a column header containing the column names, which must be separated by commas. Columns in the file must adhere to a specific predefined order outlined in the edit review report provided by the Reserve Banks.

2.3. Primary Keys

When you first open the password-protected Excel file, all primary key fields should be already formatted to "Text". If you enter your responses all at one time and save the file in a CSV format, you will preserve the formatting for the proper fields. Preserving the format is critical to submitting a successful edit report that will load into our database.

2.4. Common File Load Issues

If you intend to revise remarks several times before a submission, we recommend that conversion to CSV be done as the final step. Opening and resaving a CSV can undo previously set formatting which results in errors which will prevent the loading of those records to our database and require a resubmission. For example, the loss of leading zeroes or inadvertent scientific notation formatting. CSV files that contain line feeds or carriage returns in any column will also prevent the loading of remarks to the database and require a resubmission.

The proper format of the As-of date field is 'YYYY-MM-DD hh:mm:ss.mmm'. Note: The time stamp values must all be zeroes.

2.5. Submission

The CSV file should be uploaded through the IntraLinks system as an Official Template according to the corresponding schedule. All Respondent Edit Reports loaded to the main submission folder with the metadata tag "Submission Type = Y-14 Schedule" will be automatically loaded to the database.

See Intralinks technical guidance for more information on how files should be uploaded.

2.6. Naming Conventions

The CSV file should adhere to the following naming convention.

For All Schedules (Except Retail):
FRY14Q/A_YYYYQQ_Schedule_IDRSSD_RespondentEditReport_CreationDate(YYYYMMDD)_NumberOfEditFailures.csv

For Retail:
FRY14Q/A_YYYYQQ_Schedule_SubSchedule_IDRSSD_RespondentEditReport_CreationDate(YYYYMMDD)_NumberOfEditFailures.csv

2.7. Pre-Submitting Respondent Edit Reports

The provided respondent edit report templates must be utilized for pre-submission respondent edit reports (included in Technical Documentation package). All fields must be completed. Any unexplained edits or edit explanations requiring additional detail will be sent in the FR Y-14 Respondent Edit Reports distributed by the analysts. If the pre-submission respondent edit report fails to load, all outstanding edits will be sent in the FR Y-14 Respondent Edit Reports distributed by the analysts once initial data are loaded.

3. FR Y-14 Edit Documentation

A list of all edit checks are provided in the edit documentation. To determine the changes for the current quarter filter by edit declared final date to see the red-line changes.

3.1. Version

Indicates the version for a given Edit Number. A new version is created when logic is revised, however if a change does not affect the logic then a new version is not created. Possible values include 1, 2, 3, etc.

- Edits in place for 20130930 will become Version "1"
- Any changes made for subsequent quarters will be prior Version number "+1"
- We will only version going forward (no previous versioning will be considered)

3.2. Edits and Data Dictionary Status

Indicates the status of a given edit and data dictionary item.

- Deleted
    - The edit or data dictionary item will no longer be applied in any form for current or historic data. Once a status has been changed to "Deleted" it is permanent.
        - "Deleted" for edits that will no longer be applied in any form
    - The edit or data dictionary item will no longer be applied in any form for current or historic data. Once a status has been changed to "Deleted" it is permanent.
        - "Deleted" for edits that will no longer be applied in any form
- No Change
    - The Edit or data dictionary item has not changed since the previous quarter.
- Added
    - The Edit Number or data dictionary item is new since the previous quarter.
        - "Added" for edits and items that are completely new
- Archived
    - The Edit Number remains the same, but the Version number is retired (does not change quarter over quarter), or the data dictionary item has ended. Once an item has been 'Archived" the status is permanent.
- Revised
    - The Edit Number remains the same, but the Version number may be new since the previous quarter if a logic change is made to the edit, or the data dictionary item has been updated.
        - "Revised" for edits that are a new version of an existing edit

3.3. Edit Type

Indicates the type of edit check run on each data element.

- Syntax
  - Address the *data type* and are designed to ensure data is in the correct format. Institutions must correct these edit failures. The start and end dates for active Syntax edits are always 19000101 and 99991231 respectively.
    - Will utilize the following formats: Numeric(digits,dec) and Varchar(#); Integer data type edits will no longer be used
    - Indicate that the field must be numeric and specifies the number of digits and decimals permitted. For example:
      - Edit Error Message - Must be numeric & must be Numeric(16,6)
      - Edit Logic - Must be Numeric(16,6) or for ID_RSSD, use "Must be Numeric(7,0)"
      - Edit Error Message - Must be numeric & must be Numeric(16,6)
      - Edit Logic - Must be Numeric(16,6) or for ID_RSSD, use "Must be Numeric(7,0)"
- Validity
  - Address the *data accuracy* and include mathematical calculations, factual consistencies, and relational calculations that *must* pass the edit. Depending on instructions, business conditions, and requirements, the condition *must* be true.
- Ex:
  - Edit Error Message - If provided, FIELD 1 must be greater than or equal to 0
  - Edit Logic - If <> NULL, FIELD1 >= 0
    - In some instances you will see validity edits that say must not be null, review these items and update if optimal, in instances where a null is the optimal field provide an edit explanation instead of a revision.
- Quality
  - Addresses *data accuracy* but measures the reasonableness of the data that *should* pass the edit. There are valid conditions in which correctly reported data could trigger an edit resulting in a false positive. The edit responses provided for these false positive edits provide valuable information to the data end users at the Federal Reserve. For Example:
    - Edit Error Message - If provided, FIELD1 (Current Quarter) should be greater than or equal to FIELD2 (Previous Quarter) Edit Logic - If <> NULL, FIELD1 >= FIELD2
- Intraseries
  - Type of quality edits designed to monitor unusual or unexpected changes between report periods.
- Interseries
  - Type of quality edit that compares data for unexpected or unusual reported values between different report series.

3.4. Quarter Modified Date

Quarter modified date will be the collection quarter the edit was last modified.

- To determine the changes for the current quarter filter by the quarter modified date to see the redlines of what changed.
- If any changes occur after the edits are initially sent to the institutions, the date would be updated to reflect the most up to date changes. To see the applicable edits for a given quarter, the Status and/or Start and End Date columns can be used as filters. The quarter modified date is updated for all redline changes.

3.5. Start Date

The start date is the date the edit will be effective. For technical reasons this may not always match the date the edit was last modified. For example: 20070331

3.6. End Date

The last effective quarter the edit would run. For technical reasons this may not always match the date the edit was last modified.

- Ex: 20130930 or 99991231 if the edit is currently running on the data.

Appendix A: Transtype Details

Transtype is utilized to insert (I), update (U), or delete (D) records. Each record submitted is uniquely identified by its primary keys and must be marked with a Transtype value. These markers indicate what action should be taken to systematically upload data to the database. Correct use of these markers are important for successfully loading data.

- "I" should be used to insert records with a unique set of primary keys that does not already exist in the database.
- "U" should be used to update records with a unique set of primary keys that already exist in the database. The "U" transtype updates the entire record, therefore, even if one data item changed, all other items must remain in the record for the record to be updated successfully. Not including unchanged data items in the records will NULL out those columns.
- "D" should be used to remove records with a unique set of primary keys that already exist in the database.

Submissions may contain combinations of Transtype "I", "U", and "D" for different records. However, a submitted file cannot contain different Transtypes for records that contain the same set of primary keys.

Partial data file are accepted for the following schedules:

- CIL
- CRE
- Retail
- OpsRisk
- RCI
- Counterparty

Full data files are necessary for the following schedules:

- Supplemental
- PPNR
- Securities
- FVO
- Balances
- RCT
- Trading

Submissions of Transtype of "U" or updates are encouraged when possible rather than a delete ("D") and subsequent insert ("I").

In the circumstances when a primary key needs to be changed, transtype "D" should be used to remove the incorrect set of primary keys before inserting the new record ("I" in a subsequent file).

When submitting data, the following tables are to be excluded from their respective schedules if there is no data to be transmitted:

- RCT schedule: Planned Actions table

- Securities: Hedging table
- RCI schedule: Redemptions and Issuances tables
- Trading: all tables

Initial Data Submissions

The first submission of a reporting period should include all new records, and therefore Transtype indicators of “I” for each unique set of primary keys are expected.

Submissions that Fail to Load/File Load Issues

If an initial submission failed to load (i.e. no records loaded to database) a revised submission should utilize a Transtype “I” for all records (each unique set of primary keys).

Revised Submissions

If an additional record with a unique set of primary keys is to be added after an initial submission, the record should use Transtype “I”.

Any resubmission with a change to a data value from a previously provided value that was successfully loaded should use Transtype “U”.

Transtype “D” can be used to remove a previously submitted record from the database.

In most instances, it is recommended to utilize a Transtype of “U” to modify data values already in the database. However, in order to change a primary key Transtype “U” cannot be used instead Transtype “D” is used when there is a syntax edit failure on a primary key. In these scenarios a Transtype “D” should be used to remove the incorrect set of primary keys before inserting the new record of Transtype “I”.

Appendix B: XML Validation

XML validation is the process of checking a document written in XML to confirm that it is both well formed and valid. A well formed document follows the basic syntactic rules of XML, which are the same for all XML documents. A valid document respects the rules dictated by the XSD.

There are various free tools available that will validate XML documents against given XSDs.

- XML Notepad 2007 (http://www.microsoft.com/en-us/download/details.aspx?id=7973) provides a simple intuitive user interface for browsing and editing XML documents.
- Notepad++ (http://notepad-plus-plus.org/) plugin that offers XML validation against an XSD.
- Xerces C++ (http://xerces.apache.org/xerces-c/) is a validating XML parser written in a portable subset of C++. Xerces C++ makes it easy to read and write XML data.
- Microsoft Excel offers a built in function to validate XML data against an XSD to ensure that any XML data you import to or export from one or more cells in a mapped range in a worksheet conforms to the XSD in the XML Source task pane.

Excel XML Validation

1. On the Developer menu, point to XML, and then click XML Map Properties to display.
2. In the XML Map Properties dialog box, select Validate data against schema for import and export.

Please see the screenshot below for an example of a graphic display of how to validate and export an XML file.

XML File Creation

The following two examples provide instructions on how to create an XML file. The first example provides step by step instructions on how to create an XML file to submit files that contain a single table of records. The example provided demonstrates how to properly map a PPNR file, however these instructions can be replicated to map any of the single table files collected in the FR Y-14 Q schedules. The second example provides step by step instructions on how to create an XML file to submit files that

contain multiple tables. The example provided demonstrates how to properly map a Regulatory Capital Instruments file but it can be replicated to map any of the multiple table files collected in the FR Y-14 Q schedules.

Example 1: Single Table XML

The following process is an example of how an XML file can be created. Details for the reported values and the MDRMs can be found in the attached data dictionary documentation This documentation will identify the reported value and further prescribe the data type and format that is expected for the reported values.. To successfully map an xsd,follow the steps below using PPNR_Version3.xsd as an example:

1. Save the PPNR_Version3.xsd to a local drive that can easily be accessed.
2. Open a new Excel document, select the 'Developer' tab in the toolbar at the top, and locate the 'Source' icon. Once selected, a pane on the right most portion of the screen will appear. Select 'XMLMaps...' from the pane and then select 'Add...' from the pop-up screen.

3. Next locate and select the PPNR_Version3.xsd and click open. The 'Multiple Roots' dialog box will appear. Select the SRT_PPNR_Data_Collect option and then click 'OK'

4. Then select 'OK' on the 'XML Maps' dialog box. After selecting 'OK', the data elements will populate in the right hand pane.

5. First map the DATA_ASOF_TSTMP and LAST_ASOF_TSTMP tags. While pressing the 'CTRL' key select those two items with the mouse then click and drag the cursor to cell A1. Cells A1 and B1 will then be highlighted indicating successful mapping of these two items.

6. We will next map the items collected on the table. The items for PPNR will be mapped using the PPNR_Data_Collect_TRANS icon in the right hand pane. Select the PPNR_Data_Collect_TRANS which will highlight the corresponding items. Click and drag the heading to cell C1. The image below depicts how this should appear.

7. Now all of the requested items have been mapped. Complete the data fields as prescribed by the information in this document and in accordance with the data dictionary document provided (note: all data will be completed below the header. From instruction number 5,

DATA_ASOF_TSTMP and LAST_ASOF_TSTMP should be input directly into cells A1 and B1. Once all data have been input export into the desired .XML format that is needed for submission. First select 'Export' from the 'Developer' tab in the toolbar at the top. Then name file according to the format provided in the document (FRY14Q_PPNR_20140930_1234567_09_25_2014.xml) and select 'Export'.

Example 2: Multiple Table XML

The following process is an example of how an XML file can be created.. Details for the reported values and the MDRM's can be found in the attached data dictionary documentation This documentation will identify the reported value and further prescribe the data type and format that is expected for the reported values. To map an .xsd follow the steps below using RCI_Version01.esd as an example:

1. Save the RCI_Version01.xsd to a local drive that can easily be accessed.
2. Open a new Excel document, select the 'Developer' tab in the toolbar at the top, and locate the 'Source' icon. Once selected a pane on the right most portion of the screen will appear. Select 'XMLMaps...' from the pane and then select 'Add…' from the pop-up screen.

3. Next locate and select the RCI_Version01.xsd and click open. The 'Multiple Roots' dialog box will appear. Select the RCI_Data_Collect option and then click 'OK'

4. Then select 'OK' on the 'XML Maps' dialog box. After selecting 'OK', the data elements will populate in the right hand pane. We will map each of the tables to a separate tab. For reference, label three tabs according to the three sets of data being collected ('Regulatory Capital Instruments at QTR End', 'Redemptions During Qtr', and 'Issuances During Qtr')

5. First map the DATA_ASOF_TSTMP and LAST_ASOF_TSTMP tags. While pressing the 'CTRL' key select those two items with the mouse then click and drag the cursor to cell A1. Cells A1 and B1 will then be highlighted indicating successful mapping of these two items.

6. We will next map the items collected on each of the tables. The first set of items for the Regulatory Capital Instruments at QTR End tab will be mapped using the RCI_Data_Collect_MS icon in the right hand pane. Select the RCI_Data_Collect_MS which will highlight the corresponding items. Click and drag the heading to cell C1. The image below depicts how this should appear.

7. The second set of items for Redemptions During Qtr tab will be mapped using the RCI_Data_Collect_RED icon in the right hand pane. Select the corresponding Excel tab and then select the RCI_Data_Collect_RED which will highlight the corresponding items. Click and drag the heading to cell A1. The image below depicts how this should appear (DATA_ASOF_TSTMP and LAST_ASOF_TSTMP tags do not need to be mapped for this tab).

8. The third set of items for Issuances During Qtr tab will be mapped using theRCI_Data_Collect_ISS icon in the right hand pane. Select the corresponding Excel tab and then select the RCI_Data_Collect_ISS which will highlight the corresponding items. Click and drag the heading to cell A1. The image below depicts how this should appear (DATA_ASOF_TSTMP and LAST_ASOF_TSTMP tags do not need to be mapped for this tab).

9. Now all of the requested items have been mapped. Complete the data fields as prescribed by the information in this document and in accordance with the data dictionary document provided (note: all data will be completed below the header. For instruction number 5, DATA_ASOF_TSTMP and LAST_ASOF_TSTMP should be input directly into cells A1 and B1. Once all data have been input, export into the desired .XML format that is needed for submission. First select 'Export' from the 'Developer' tab in the toolbar at the top. Then name file according to the format provided in the document (FRY14Q_RCI_20140630_1234567_07_11_2014.xml) and select 'Export'.

10. Save the RCI_Version01.xsd to a local drive that can easily be accessed.

Notes:

- Excel changes date formats into Julian Date; to ensure the date is in the correct format listed in the technical instructions all date fields should be formatted as text.
- If a schedule has multiple tables and an institution does not have data for one of the tables do not provide any values for the primary keys.
- These instructions work for the current excel version of Office 2013 as of September 30, 2014. Any software updates to Microsoft could alter these instructions.