Oracle® Revenue Management and Billing

Version 2.7.0.0.0

File Upload Interface (FUI) - Quick Reference Guide

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Oracle Revenue Management and Billing File Upload Interface (FUI) - Quick Reference Guide

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Preface

About This Document

This document provides a detail explanation of ORMB approach for Data Conversion and integration. It describes parameters related to File Upload Interface Master Configuration and also explains how to perform important tasks using File Upload Interface. This Reference Guide supplements the information provided in *File Upload Interface User Guide* and *File Upload Interface Version 2.6.0.1.0 Batch Execution Guide*.

Intended Audience

This document is intended for the following audience:

- End-users
- Implementation Team
- Consulting Team
- Development Team

Organization of the Document

The information in this document is organized into the following chapters:

Section No.	Section Name	Description
Section 1	ORMB Approach for Data Conversion on Premise	Explains the ORMB Approach for Data Conversion on premise. It also provides the steps to be followed for converting data using ORMB.
Section 2	File Upload Interface	Provides an overview of File Upload Interface.
Section 3	ORMB Approach for Data Conversion using File Upload Configuration	Explains the ORMB Approach for Data Conversion using File Upload Interface. It also provides the steps to be followed for converting data using File Upload Interface.
Section 4	File Upload Interface Master Configuration	Describes important parameters related to File Upload Interface Master Configuration.
Section 5	Creating File Request Type	Lists the steps to create file request type.
Section 6	Working with File Request Type	Explains different fields in File Request Type zone and tasks which you can perform using File Upload Interface.
Section 7	Updating records marked with 'Error' or 'Pending' status	Lists steps to update record status using File Upload Dashboard.
Section 8	Transforming Data	Identifies important concepts related to transforming data.

Related Documents

You can refer to the following documents for more information:

Document	**Description**
Oracle Revenue Management and Billing Banking User Guide	Lists and describes various banking features in Oracle Revenue Management and Billing. It also describes all screens related to these features and explains how to perform various tasks in the application.
File Upload Interface User Guide	Helps you configure File Upload Interface.
File Upload Interface Version 2.6.0.1.0 Batch Execution Guide	Explains the batches to be executed while performing various tasks in File Upload Interface.

Contents

1. ORMB Approach for Data Conversion on Premise

Enterprise information systems comprise of a variety of data storage systems, which vary in complexity and in the ways they access internal data.

- **Shared Database** - All applications that you are integrating read data directly from the same database.
- **Maintain Data Copies** - Maintain copies of the application's database so that other applications can read the data (and potentially update it).
- **File Transfer** - Make the data available by transporting a file that is an extract from the application's database so that other applications can load the data from the files.
- **Service Integration** - Real time integration using SOAP/REST services.

ORMB uses file transfer approach for data conversion and data integration.

1.1 Prerequisites

To convert data using ORMB on premise, you should have:

1. Conversion tool kit.
2. Pre-staging, staging and production schema.
3. Stored procedures to map (transform) and transfer data from pre-staging stage to staging stage and staging stage to production stage.

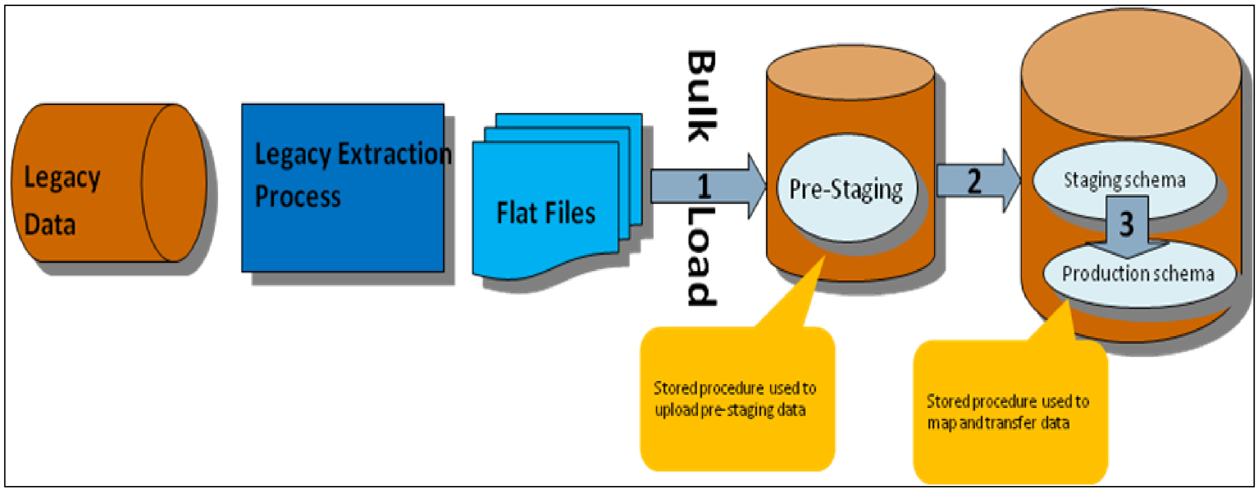
1.2 Steps for ORMB Conversion

To convert data, you need to follow the below steps:

1. The legacy data has to be manually relocated to a database for ConversionMapper to access the data before converting into ORMB table structure.
2. Create Pre-Staging schema.
3. Define tables to refer to a legacy tables external to ORMB. These tables which contain legacy data are defined as Input Tables in ConversionMapper.
4. A Bulk Load utility such as SQL*Loader in Oracle is typically used to copy the legacy files into the ORMB Pre-Staging schema.
5. Create Staging schema.
6. Instead of using the flat files directly, the Oracle tables (Input Tables) that represent the flat files are used to map to ORMB.
7. The legacy tables or “Input Tables” in ConversionMapper **MUST** exist on a database (staging schema), so that ConversionMapper can use SQL statements to access the tables.
8. The legacy tables can be defined as tables on the staging schema (STGADM) or as views (also on STGADM) of tables on another schema or database.
9. Stored Procedures are used to map, validate and transfer the data to staging schema.

1.3 ORMB Conversion Flow Diagram

The flow of data between the two systems is illustrated below:


Legacy Data
Legacy Extraction Process
Flat Files
Bulk Load
1
Pre-Staging
2
Staging schema
3
Production schema
Stored procedure used to upload pre-staging data
Stored procedure used to map and transfer data

1.4 Disadvantages

- Data transformation and loading is done using Stored procedures thereby resulting in duplication of data validation and business rules.
- Risk of missing data validation and business rules.

1.5 Cloud Guideline

Before deciding to migrate to cloud based frameworks, note that:

- Legacy systems do not have access to ORMB database.
- Stored procedures cannot be deployed on cloud database.

2. File Upload Interface

ORMB File Upload Interface will be used for data conversion and data integration on cloud. It provides ability to upload files to staging. It will provide way to map file records to ORMB services. ORMB file upload interface will invoke ORMB services for each of the record.

The ORMB file upload interface provides following benefits:

- Conversion tool kit not required.
- No Pre-staging schema required.
- No ORMB DB access required for any legacy system.
- Data load in ORMB system is done using existing ORMB service schemas thereby no duplication of data validation and business rules.
- No risk of missing data validation and business rules.
- Supports transformation for files in XML, JSON, Fixed Position, CSV, PSV and TSV formats.

Online system can be used to view the uploaded files and their corresponding processed details.

3. ORMB Approach for Data Conversion and Integration using File Upload Interface

This section lists the steps to be followed before using File Upload Interface. It also describes approaches you can take when working with ORMB File Upload Interface.

3.1 Prerequisites

To convert data using ORMB using File Upload Interface, you should:

1. Define File Upload Interface master configuration. For more information on how to define File Upload Interface master configuration, refer *File Upload Interface User Guide*.
2. Configure File Request Type with required mapping of existing ORMB Services Business Objects or Business Services or Service Script specific to Transaction Stage Upload service. You need to add date format in “FILE_UPLOAD_DATE_FORMATS” lookup to support client specific date inputs in Transaction Header.

3.2 Approaches for ORMB Conversion and Integration Process

To convert or integrate files in ORMB file upload interface, you can follow any of the below two approaches:

1. ORMB conversion and integration process without file transformation
2. ORMB conversion and integration process with file transformation

3.2.1 ORMB Conversion and Integration without File Transformation

To convert or integrate files without file transformation, you need to follow below steps:

1. Ensure that the files are in XML format and comply with ORMB service schema.

Note: File upload supports files in XML format only.

2. Publish service XMLs conforming to ORMB service schemas that are to be used for conversion.
3. If validations for Header, Footer or Checksum are required, then you need to write an algorithm deriving “FileValidationAlgorithmSpot”.
4. If any preprocessing is required before invoking Business Object or Business Service or Service Script service, then you need to implement an algorithm deriving “FileRequestPreProcessingAlgorithmSpot”.
5. Execute File Transform and Upload batch (C1-FTRAN). This will read flat file records and upload in file upload staging. For more information on C1-FTRAN batch, refer *File Upload Interface Version 2.6.0.1.0 Batch Execution Guide*.
6. Execute File Request Processing batch (C1-FREQP). This will read the records from staging and process those using Service configured in file request type. For more information on C1- FREQP batch, refer *File Upload Interface Version 2.6.0.1.0 Batch Execution Guide*.
7. File upload and processing steps can also be done by executing only C1-FTRAN batch. You are required to set “File Upload and Process” flag as true in File Request Type configuration.

8. Perform required fixes either in File Request Type Configuration or file details.

Note: During conversion process, conversion cycles can be run on UAT environment while the system is being tested on the production schema.

3.2.2 ORMB Conversion and Integration with File Transformation

To convert or integrate files with file transformation:

1. File upload supports files in XML, JSON, CSV, PSV, TSV or Fixed Position formats.
2. File record transformation algorithm can be implemented by deriving "FileRequestTranformationAlgorithmSpot".
3. File transformation will be done using Transformation Detail configuration in its file request type.
4. If validations for Header, Footer or Checksum are required, then implement an algorithm deriving "FileValidationAlgorithmSpot".
5. If any preprocessing is required before invoking Business Object or Business Service or Service Script service, then implement an algorithm deriving "FileRequestPreProcessingAlgorithmSpot".
6. Execute File Transform and Upload batch (C1-FTRAN). This will read the flat file records and transform those using "File Record Transformation" algorithm and upload in file upload staging.
7. Execute File Request Processing batch (C1-FREQP). This will read the records from staging and process those using Service configured in File Request Type.
8. File transform, upload and processing steps can also be done by executing only C1-FTRAN batch. You are required to set "File Upload and Process" flag as true in File Request Type configuration.
9. Perform required fixes either in File Request Type Configuration or file details.

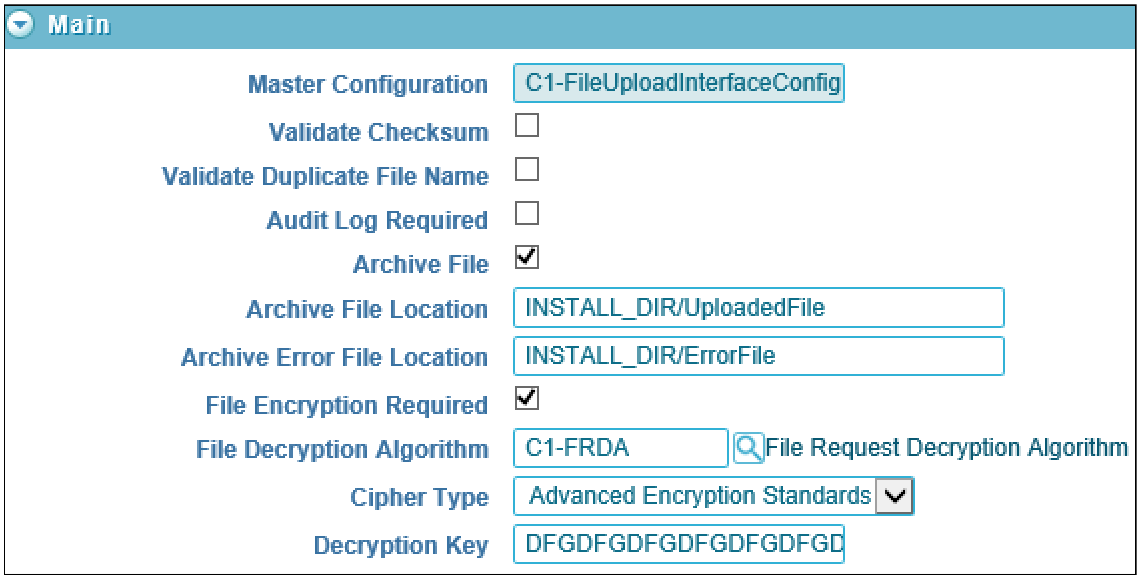
Note: During conversion process, conversion cycles can be run on UAT environment while the system is being tested on the production schema.

4. File Upload Interface Master Configuration

This configuration is referred in file upload for file decryption, archival of file, and audit logging. To view and edit file upload configuration, you need to do the following:

1. From the **Admin** menu, select **M** and then click **Master Configuration**. The **Master Configuration window** appears.

2. Click the **Edit** ( ) icon corresponding to the **File Upload Interface Configuration**. The **Master Configuration** window appears.



Master Configuration	C1-FileUploadInterfaceConfig
Validate Checksum	☐
Validate Duplicate File Name	☐
Audit Log Required	☐
Archive File	✓
Archive File Location	INSTALL_DIR/UploadedFile
Archive Error File Location	INSTALL_DIR/ErrorFile
File Encryption Required	✓
File Decryption Algorithm	C1-FRDA File Request Decryption Algorithm
Cipher Type	Advanced Encryption Standards
Decryption Key	DFGDFGDFGDFGDFGDFGD

Figure 1: File Upload Interface Configuration - Master Configuration

4.1 Parameters related to File Upload Interface Master Configuration

This section lists and describes following important parameters related to File Upload Interface Master Configuration.

1. Validate Checksum
2. Validate Duplicate File Name
3. Audit Log
4. Archive File
5. Archive File Location
6. Archive Error File Location
7. File Encryption
8. File Decryption Algorithm
9. Cipher Type
10. Decryption Key

4.1.1 Validate Checksum

This flag will decide whether to check the integrity of the file before staging file contents in ORMB system. The Validate Checksum parameter can be described as:

1. Field Type: Check box
2. Valid Values: True or False
3. Description:
   - If **True**, checksum validation will be always performed for all the uploaded files.
     - For every uploaded file, it is required to have the corresponding `<FILE_NAME>.checksum` file on SFTP server.
     - It is required to have **File validation algorithm** mapped with every **File Request Type**.
     - **File validation algorithm** is derived from “**FileHeaderValidationAlgorithmSpot**”.
     - Checksum validation logic is implemented in **File validation algorithm.** This algorithm is used for Header and Footer validations.
     - File Validation algorithm is derived from “**FileHeaderValidationAlgorithmSpot**”.
     - Sample “**FileHeaderValidationAlgorithm_Impl**” algorithm is provided with:
     - Header validation – Number of records are checked.
     - Checksum validation – Done using “**MD5**” algorithm type.
     - For checksum validation, if you want to use the default implementation in any specific **File validation algorithm**, then it can be done by invoking “**calculateChecksum(String fileString, String algoName)”** function in “**FileRequestProcessBusinessComponent_Impl”** business component.
   - If **False**, this flag skips this checksum validation.

Note: For uploaded file, it is not required to have corresponding <FILE_NAME>.checksum file.

4.1.2 Validate Duplicate File Name

This flag will be used to decide the required validation of duplicate file name before uploading a file. The Validate Duplicate File Name parameter can be described as:

1. Field Type: Check box
2. Valid Values: True or False
3. Description:
   - If **True**, file with same name which is already existing in staging, will not be uploaded.
   - If **False**, file with same name will be uploaded.

4.1.3 Audit Log

This flag will decide whether to log corresponding file request status transition after processing an individual file request. The Audit Log parameter can be described as:

1. Field Type: Check box
2. Valid Values: True or False
3. Description:
   - If **True**, status transitions for all the file request data will be maintained in ORMB system.
     - Logging will be done in "**CI_FILE_REQUEST_DTL_MSG**" table with "**LOG_ENTRY_TYPE_FLG**" value as "**F1ST**".
     - "**CI_FILE_REQUEST_DTL_MSG**" table is also used for error logging with "**LOG_ENTRY_TYPE_FLG**" value as "**F1EX**".
   - If **False**, status transitions for the file requests will not be performed.

4.1.4 Archive File

This flag decides whether to relocate the file to another location after processing on SFTP server. Here, location refers to the path mentioned in "Archive File Location" or "Archive Error File Location". The Archive File parameter can be described as:

1. Field Type: Check box
2. Values: True or False
3. Description:
   - If **True**, files will be moved to another location. There are two scenarios:
     - If file is uploaded successfully, the files will be moved to defined archive file location.
     - If file upload fails, the files will be moved to defined archive error file location.
   - If **False**, the files will remain at the same location.

4.1.5 Archive File Location

It is used to specify the file path used for archiving the file. The successfully processed file will be moved to this location. The Archive File Location parameter can be described as:

1. Field Type: Input field
2. Values: It is free text

3. Description:
    - If **True**, successfully uploaded files will be moved to defined archive file location.
    - If **False**, the files will remain at the same location.
    - File Location should always be a combination of logical path and relative path and prefixed with either "**INSTALL_DIR**" or "**SHARED_DIR**". For example, if you want to define file location as "**/scratch/rmbbuild/sftpFile**", then it will be "**INSTALL_DIR/ sftpFile**" where "**INSTALL_DIR**" value is defined as "**/scratch/rmbbuild**"
    - "INSTALL_DIR" variable value is defined against "**spl.runtime.environ.SPLEBASE**" in "**spl.properties**" file.
    - "**SHARED_DIR**" variable has a static value. It is a shared storage path mounted in cloud environment.
    - The defined location will be always appended by the corresponding File Request Type.
        - **Archive Error File Location** - INSTALL_DIR/FilesUploaded
        - **INSTALL_DIR path** - /scratch/rmbbuild
        - If batch is executed for "**ADD_PERSON**" file request type, then files will be moved to **/scratch/rmbbuild/FilesUploaded/ADD_PERSON/**

4.1.6 Archive Error File Location

It is used to specify the file path used for archiving the error files. The files with errors will be moved to this location. The Archive Error File Location parameter can be described as:

1. Field Type: Input field
2. Values: It is free text
3. Description:
    - If **True**, files that failed to upload will be moved to this defined error file location.
    - If **False**, files will remain at the same location.
    - Error File Location should always be a combination of logical path and relative path and prefixed with either "**INSTALL_DIR**" or "**SHARED_DIR**". For example, if you want to define file location as "**/scratch/rmbbuild/sftpFile**", then it will be "**INSTALL_DIR/ sftpFile**" where "**INSTALL_DIR**" value is defined as "**/scratch/rmbbuild**"
    - "**INSTALL_DIR**" variable value is defined against "**spl.runtime.environ.SPLEBASE**" in "spl.properties" file.
    - "**SHARED_DIR**" variable has a static value. It is a shared storage path mounted in cloud environment.
    - The defined location will be always appended by the corresponding File Request Type.
        - **Archive Error File Location** - INSTALL_DIR/ErrorFiles
        - **INSTALL_DIR path** - /scratch/rmbbuild
        - If batch is executed for "**ADD_PERSON**" file request type then files will be moved to **/scratch/rmbbuild/ErrorFiles/ADD_PERSON/**

4.1.7 File Encryption

This flag will decide whether to first decrypt and then extract the files on SFTP server. The File Encryption parameter can be described as:

1. Field Type: Check box
2. Values: True or False
3. Description:
    - If **True**, files on SFTP server will be decrypted using File Decryption Algorithm, then extracted and processed to upload the file data in ORMB staging.
    - It is **MUST** to have **File Decryption Algorithm** for using the file encryption parameter. The algorithm must be derived from “**FileRequestDecryptionAlgorithmSpot**”. This algorithm will have the implementation commands for getting the required decrypted file.
    - A sample “FileRequestDecryptionAlgorithm_Impl” algorithm is provided with ORMB application. The algorithm,
        - i. Gets the decryption key for defined “com.oracle.ouaf.system.keystore.file” alias in “ouaf_keystore” file.
        - ii. Gets the decrypted file using decryption key.

4.1.8 File Decryption Algorithm

It defines the algorithm to be used for decryption of a file. The File Decryption Algorithm parameter can be described as:

1. Field Type: Search field
2. Values: Algorithms deriving “**FileRequestDecryptionAlgorithmSpot**”.
3. Description:
    - This algorithm must have an implementation for decrypting the input File.
    - It gets the secret key stored against “com.oracle.ouaf.system.keystore.passwordFileName” alias and uses secret key to access “ouaf_keystore” file.
    - It gets the decryption key stored against “com.oracle.ouaf.system.keystore.file” alias in “ouaf_keystore” file.
    - The decryption key decrypts and returns the file string.

4.1.9 Cipher Type

This is an algorithm type used to get the decryption key. The Cipher Type parameter can be described as:

1. Field Type: Dropdown
2. Values: The valid values are:
    - Advanced Encryption Standards
    - Data Encryption Standard
    - Password Based Encryption
    - RAS
3. Description: This lists decryption algorithm types.

4.1.10 Decryption Key

This key will be used to decrypt the uploaded encrypted files on SFTP server. The Decryption Key parameter can be described as:

1. Field Type: Input
2. Values: Free Text
3. Description:
    - This holds a decryption key which is further used to get the decrypted file data.
    - This field value is not stored in database.
    - It will be stored against “com.oracle.ouaf.system.keystore.file” alias in “ouaf_keystore” file.

5. Creating File Request Type

File request type is a configuration which will allow you to upload files in any format and transform the files in ORMB compliant format.

When creating a file request type, you have two options:

1. Create File Request Type without file transformation
2. Create File Request Type with file transformation

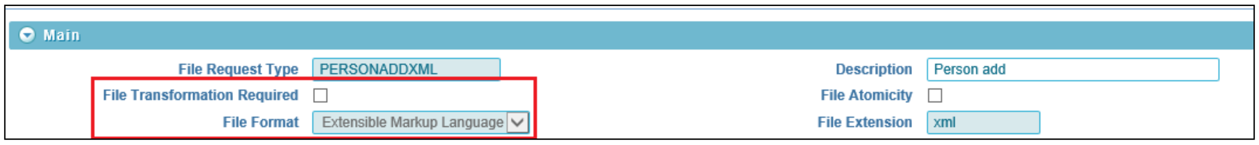
5.1 Creating File Request Type Without File Transformation

To create file request type without file transformation:

1. From the **Admin** menu, select **F** and then click **File Request Type**. A sub-menu appears.
2. Click **Add** option from the **File Request Type** sub-menu. The **File Request Type** window appears. This window has following sections:
   - Main
   - Services
   - Messages
   - Transformation Details
3. Enter name of file request type in **File Request Type** field.
4. Verify if the value for **File Format** field is **Extensible Markup Language**.
   - If the value is Extensible Markup Language, go to Step 5.

Note: Default value for File Format field is Extensible Markup Language.

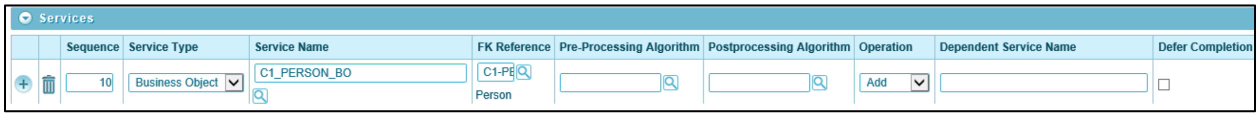
   - If **File Format** has any other value,
     i. Select **File Transformation Required** check box. The File Format field gets enabled.
     ii. Select Extensible Markup Language from the **File Format** drop-down list.
     iii. Deselect **File Transformation Required** flag and go to Step 5.


Main

File Request Type	PERSONADDXML	Description	Person add
File Transformation Required	☐	File Atomicity	☐
File Format	Extensible Markup Language	File Extension	xml

Figure 2: File Transformation

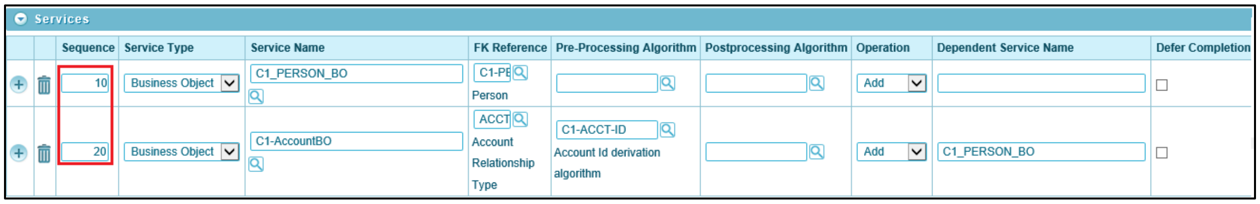
5. Configure at least one service within Service section. This service will be used to process flat file records.


Services

		Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
+	🗑	10	Business Object	C1_PERSON_BO	C1-PE Person			Add		☐

Figure 3: Configuring Service

6. Multiple relational or non-relational services can be configured under single File Request Type. For multiple services, service execution sequence of each record is decided on the basis of given Sequence number.



Services

		Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
+	🗑	10	Business Object	C1_PERSON_BO	C1-PE Person			Add		☐
+	🗑	20	Business Object	C1-AccountBO	ACCT Account Relationship Type	C1-ACCT-ID Account Id derivation algorithm		Add	C1_PERSON_BO	☐

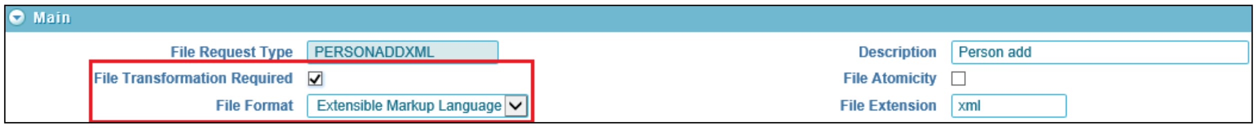
Figure 4: Configuring Multiple Services without File Transformation

7. Click **Save**.

5.2 Creating File Request Type with File Transformation

To create file request type with file transformation:

1. From the **Admin** menu, select **F** and then click **File Request Type**. A sub-menu appears.
2. Click **Add** option from the **File Request Type** sub-menu. The **File Request Type** window appears.
3. Enter name of file request type in **File Request** Type field.
4. Select **File Transformation Required** check box. The File Format field gets enabled.

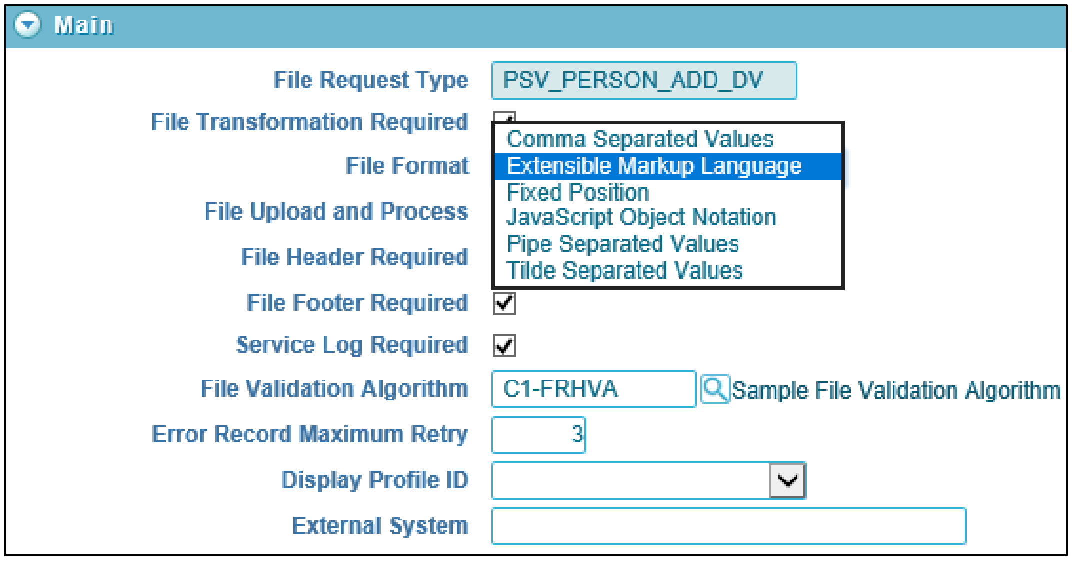


Main

File Request Type	PERSONADDXML	Description	Person add
File Transformation Required	✓	File Atomicity	☐
File Format	Extensible Markup Language	File Extension	xml

Figure 5: File Transformation

5. Select the required file format from the **File Format** drop-down list. The valid values are:
   - Comma Separated Values (CSV)
   - Extensible Markup Language (XML)
   - Fixed Position
   - JavaScript Object Notation (JSON)
   - Pipe Separated Values (PSV)
   - Tilde Separated Values (TSV)

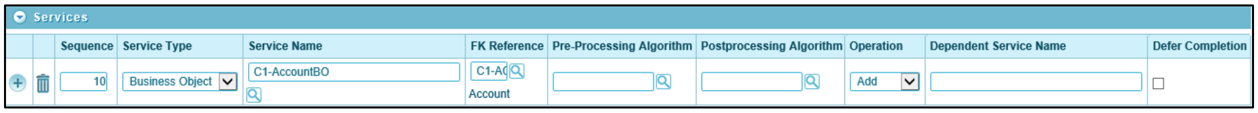


Main

File Request Type	PSV_PERSON_ADD_DV
File Transformation Required	✓
File Format	Extensible Markup Language
File Upload and Process	
File Header Required	
File Footer Required	✓
Service Log Required	✓
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm
Error Record Maximum Retry	3
Display Profile ID	
External System	

Figure 6: File Format

6. Configure at least one service within Service section. This service which will be used to process flat file records.

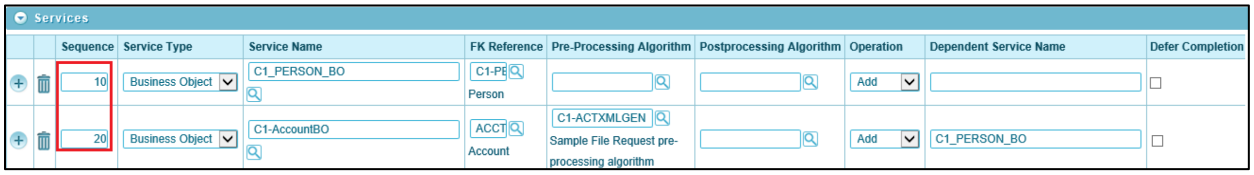


Services

Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
10	Business Object	C1-AccountBO	C1-AC Account			Add		☐

Figure 7: Service Sequence

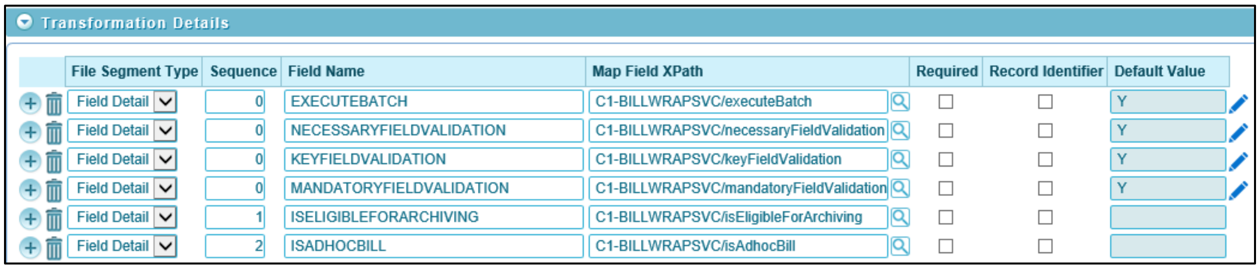
7. Multiple relational or non-relational services can be configured under single File Request Type. For multiple services, service execution sequence of each record is decided on the basis of given Sequence number.


Services

Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
10	Business Object	C1_PERSON_BO	C1-PE Person			Add		☐
20	Business Object	C1-AccountBO	ACCT Account	C1-ACTXMLGEN Sample File Request pre-processing algorithm		Add	C1_PERSON_BO	☐

Figure 8: Configuring Multiple Services with File Transformation

8. If the file is in CSV or PSV or TSV or Fixed Position format then, Transformation Details need to be configured with respect to its corresponding flat file data line. For more information on file data line, refer section Mapping Data Line or Record in a File.


Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Required	Record Identifier	Default Value
Field Detail	0	EXECUTEBATCH	C1-BILLWRAPSVC/executeBatch	☐	☐	Y
Field Detail	0	NECESSARYFIELDVALIDATION	C1-BILLWRAPSVC/necessaryFieldValidation	☐	☐	Y
Field Detail	0	KEYFIELDVALIDATION	C1-BILLWRAPSVC/keyFieldValidation	☐	☐	Y
Field Detail	0	MANDATORYFIELDVALIDATION	C1-BILLWRAPSVC/mandatoryFieldValidation	☐	☐	Y
Field Detail	1	ISELIGIBLEFORARCHIVING	C1-BILLWRAPSVC/isEligibleForArchiving	☐	☐	
Field Detail	2	ISADHOCBILL	C1-BILLWRAPSVC/isAdhocBill	☐	☐	

Figure 9: Configuring Transformation Details

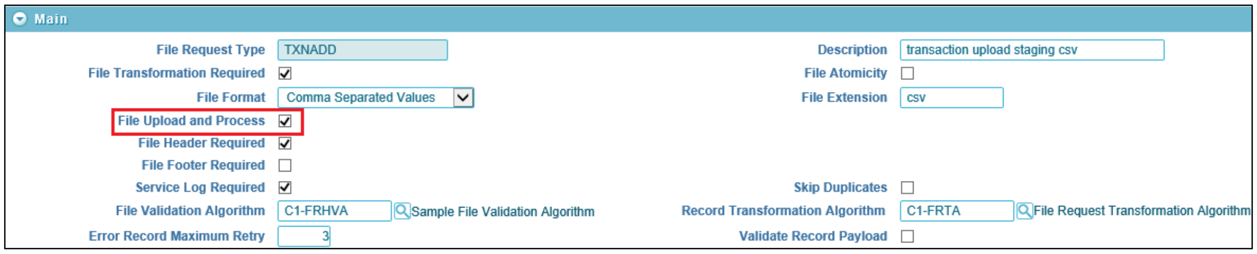
9. Click **Save**.

6. Working with File Request Type

6.1 Uploading and Processing Records using Single Batch Execution

To upload and process records using single batch execution:

1. Define a new file request type or search an existing file request type. Select **File Upload and Process** check box present in **Main** section of **File Request Type** window. This will set the flag as True.



Main

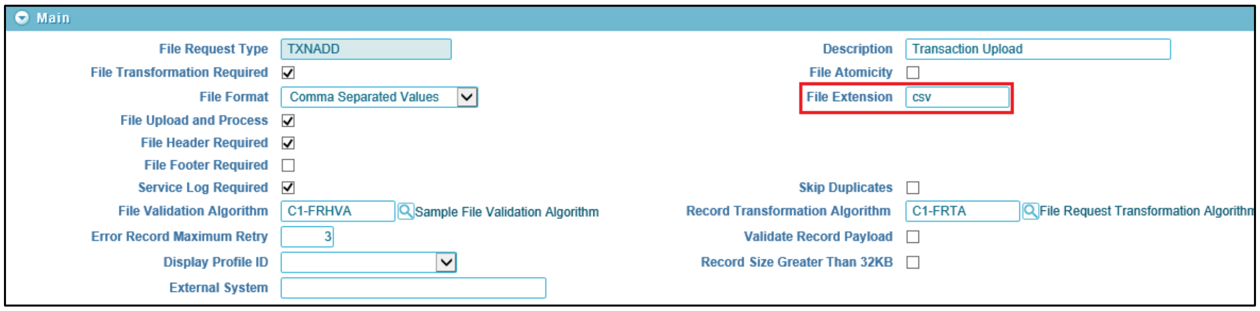
File Request Type	TXNADD	Description	transaction upload staging csv
File Transformation Required	✓	File Atomicity	☐
File Format	Comma Separated Values	File Extension	csv
File Upload and Process	✓		
File Header Required	✓		
File Footer Required	☐		
Service Log Required	✓	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry	3	Validate Record Payload	☐

Figure 10: Upload and Process Records

2. Execute C1-FTRAN batch. This batch will upload the file and start processing of all records in the file.

6.2 File Extensions used for Reading Uploaded Files on SFTP server

1. File Upload interface uses flat files to upload data in ORMB system. These flat files can have any extensions like '.txt' or '.csv' or '.dat' or '.xml', etc.
2. The legacy system locates these files on SFTP server to upload data from it. It is possible that legacy system locates different files with different extensions at the same location.
3. The C1-FTRAN batch reads only those files which matches extensions configured in File Request Type.



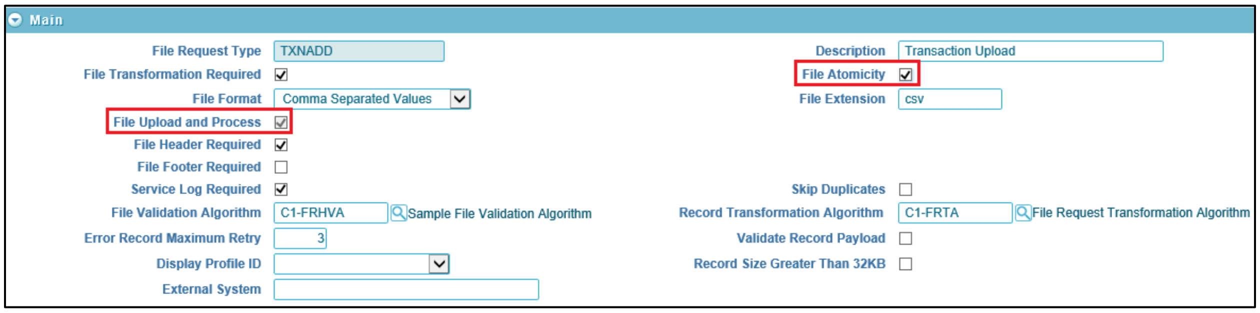
Main

File Request Type	TXNADD	Description	Transaction Upload
File Transformation Required	✓	File Atomicity	☐
File Format	Comma Separated Values	File Extension	csv
File Upload and Process	✓		
File Header Required	✓		
File Footer Required	☐		
Service Log Required	✓	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry	3	Validate Record Payload	☐
Display Profile ID		Record Size Greater Than 32KB	☐
External System			

Figure 11: File Extension

6.3 Rollback all Processed Records in case of Single Record Failure

1. You can rollback all those processed records in case of single record failure in a file by executing "C1-FTRAN" batch.
2. To rollback processed records, select "**File Atomicity**" check box in **Main** section of **File Request Type** window. It will auto set **File Upload and Process** parameter value to 'true' and disable the File Upload and Process.
3. The C1-FTRANbatch will execute both upload and process in a single execution.



Main

File Request Type	TXNADD	Description	Transaction Upload
File Transformation Required	✓	File Atomicity	✓
File Format	Comma Separated Values	File Extension	csv
File Upload and Process	✓		
File Header Required	✓		
File Footer Required	☐		
Service Log Required	✓	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry	3	Validate Record Payload	☐
Display Profile ID		Record Size Greater Than 32KB	☐
External System			

Figure 12: Rollback Processed Records

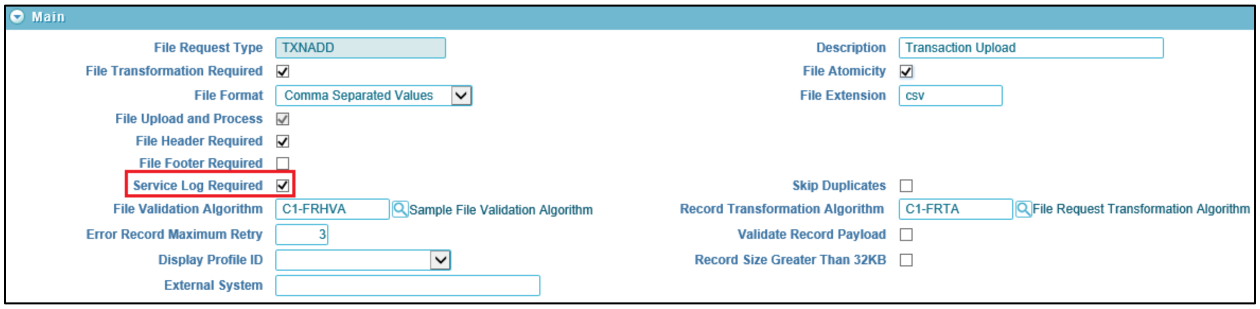
Note:

Since, batch will be executed in single thread, it will have a performance cost. Hence, File Atomicity should be preferred only in case of low data volume.

The "C1-FTRAN" batch will be executed using Single Transaction Strategy.

6.4 Validating Processing Details

1. "Service Log Required" attribute will validate if processing details need to be captured for individual records. If you require service log, select **Service Log Required** check box present in **Main** section of **File Request Type** window.

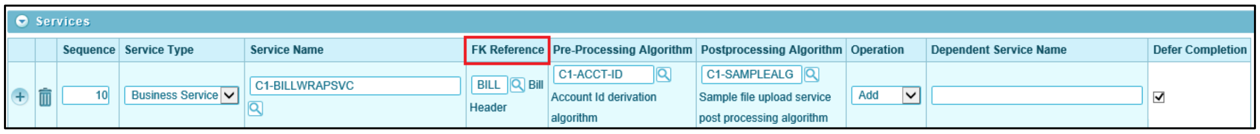


Main

File Request Type	TXNADD	Description	Transaction Upload
File Transformation Required	✓	File Atomicity	✓
File Format	Comma Separated Values	File Extension	csv
File Upload and Process	✓		
File Header Required	✓		
File Footer Required	☐		
Service Log Required	✓	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry	3	Validate Record Payload	☐
Display Profile ID		Record Size Greater Than 32KB	☐
External System			

Figure 13: Service Log

2. Record details can have primary key with its service name. Primary key for that record will be stamped only if foreign Key reference is configured in File Request Type for that invoked service.



Services

Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
10	Business Service	C1-BILLWRAPSVC	BILL Bill Header	C1-ACCT-ID Account Id derivation algorithm	C1-SAMPLEALG Sample file upload service post processing algorithm	Add		✓

Figure 14: Service Log_ Foreign Key Reference

3. These details in combination with foreign key reference will be used to navigate to its respective entity like 'Person' or 'Account' or 'Contract', etc.

Note: This feature is made optional to optimize the performance of batch.

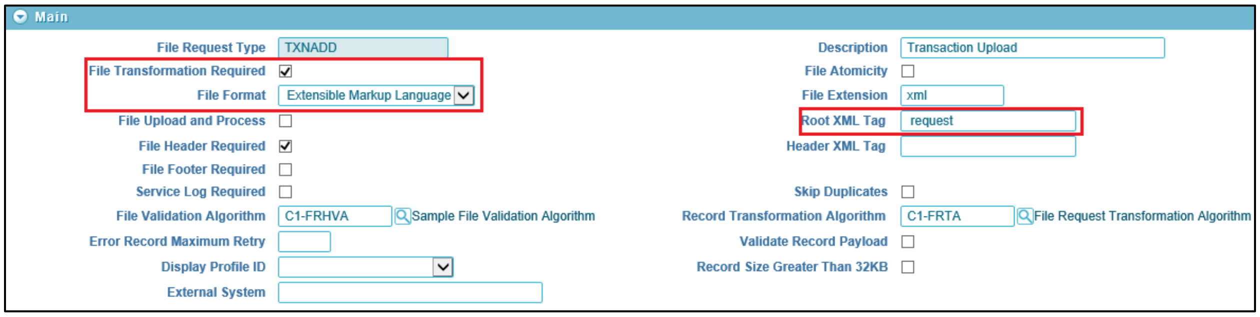
You can view the record details which have primary key in File Upload Dashboard.

6.5 Header and Footer Details in a File

1. You can have both header and footer details in a file that is to be uploaded.
2. Header and footer details are optional in file.
3. If you want to upload a file with header, footer details, you need to configure Header and Footer details in corresponding File Request Type.

Note: Header and footer details will be used only for file validations.

4. These details will not be captured in file upload staging.
5. It is mandatory to implement File Validation Algorithm if the provided file has either of header or footer details.
6. If "File Transformation Required" is marked 'True' and "File Format" is 'XML', then
   a. "Root XML Tag" is mandatory. This means service payload will have root XML tag as '<request>……..</request>'

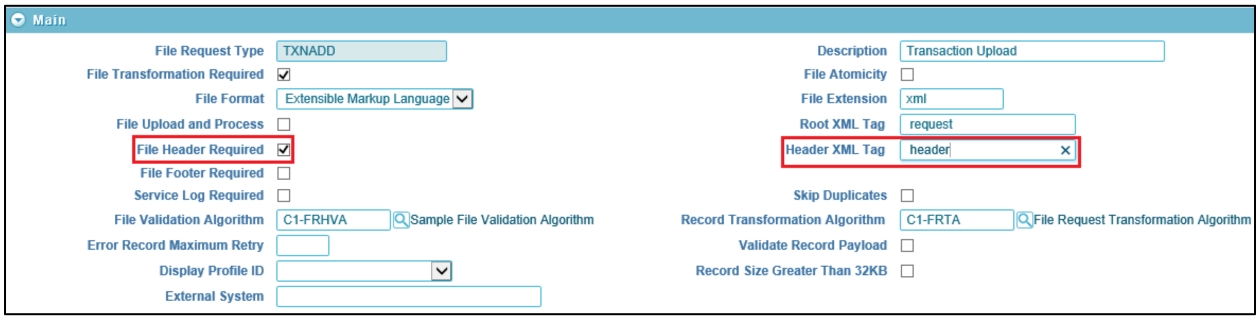


Main

File Request Type	TXNADD	Description	Transaction Upload
File Transformation Required	✓	File Atomicity	☐
File Format	Extensible Markup Language	File Extension	xml
File Upload and Process	☐	Root XML Tag	request
File Header Required	✓	Header XML Tag	
File Footer Required	☐		
Service Log Required	☐	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry		Validate Record Payload	☐
Display Profile ID		Record Size Greater Than 32KB	☐
External System			

Figure 15: Root XML Tag

   b. If "File Header Required" is marked as 'true' then, "Header XML Tag" is mandatory. This means service payload will have header XML tag as '<request> <header>……</header>……..</request>'

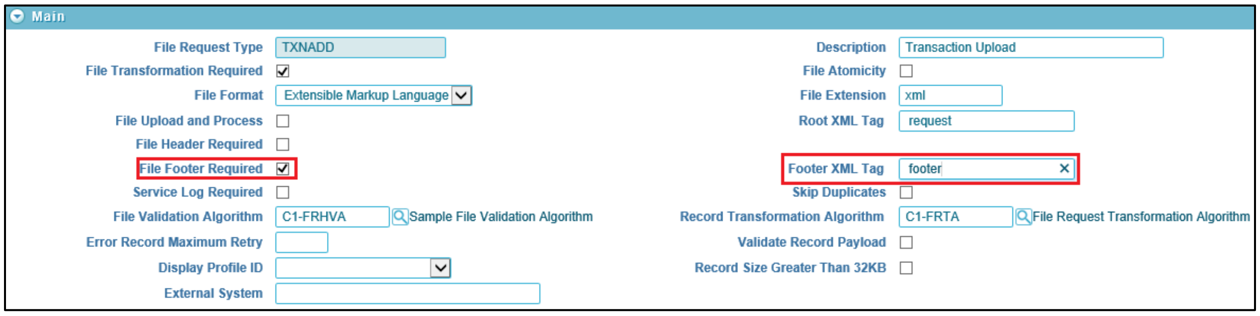


Main

File Request Type	TXNADD	Description	Transaction Upload
File Transformation Required	✓	File Atomicity	☐
File Format	Extensible Markup Language	File Extension	xml
File Upload and Process	☐	Root XML Tag	request
File Header Required	✓	Header XML Tag	header
File Footer Required	☐		
Service Log Required	☐	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry		Validate Record Payload	☐
Display Profile ID		Record Size Greater Than 32KB	☐
External System			

Figure 16: Header XML Tag

   c. If "File Footer Required" is marked as 'true' then, "Footer XML Tag" is mandatory. This means service payload will have header XML tag as '<request>……..<footer>…..</footer></request>'

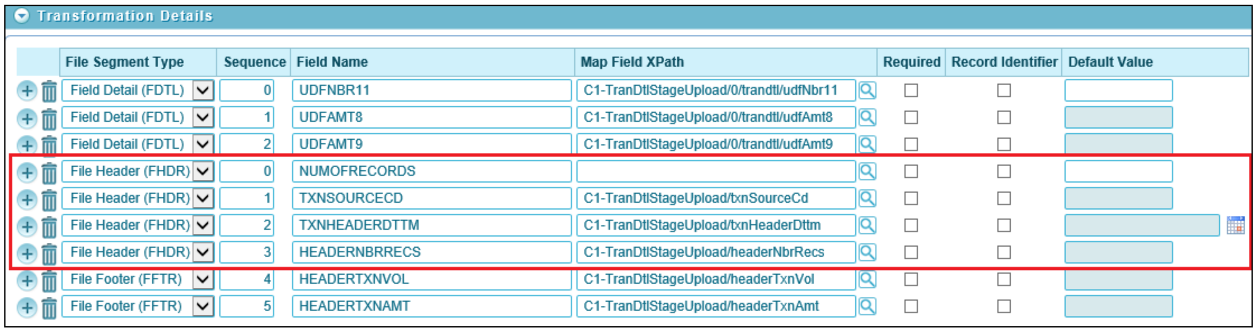


Main

File Request Type	TXNADD	Description	Transaction Upload
File Transformation Required	✓	File Atomicity	☐
File Format	Extensible Markup Language	File Extension	xml
File Upload and Process	☐	Root XML Tag	request
File Header Required	☐		
File Footer Required	✓	Footer XML Tag	footer
Service Log Required	☐	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry		Validate Record Payload	☐
Display Profile ID		Record Size Greater Than 32KB	☐
External System			

Figure 17: Footer XML Tag

7. If "File Transformation Required" is marked 'true' and "File Format" is other than 'XML' and 'JSON',
   a. If "File Header Required" is marked as 'true' then, "Transformation Details" are required to be configured for Header.

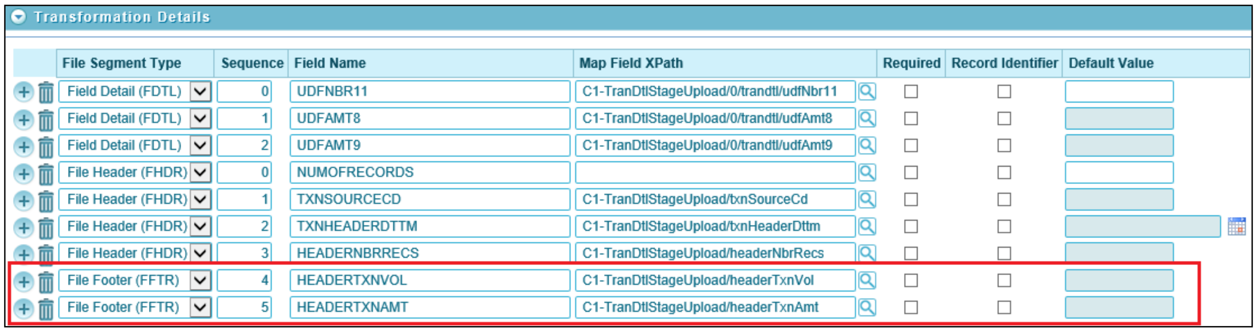


Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Required	Record Identifier	Default Value
Field Detail (FDTL)	0	UDFNBR11	C1-TranDtlStageUpload/0/trandtl/udfNbr11	☐	☐	
Field Detail (FDTL)	1	UDFAMT8	C1-TranDtlStageUpload/0/trandtl/udfAmt8	☐	☐	
Field Detail (FDTL)	2	UDFAMT9	C1-TranDtlStageUpload/0/trandtl/udfAmt9	☐	☐	
File Header (FHDR)	0	NUMOFRECORDS		☐	☐	
File Header (FHDR)	1	TXNSOURCECD	C1-TranDtlStageUpload/txnSourceCd	☐	☐	
File Header (FHDR)	2	TXNHEADERDTTM	C1-TranDtlStageUpload/txnHeaderDttm	☐	☐	
File Header (FHDR)	3	HEADERNBRRECS	C1-TranDtlStageUpload/headerNbrRecs	☐	☐	
File Footer (FFTR)	4	HEADERTXNVOL	C1-TranDtlStageUpload/headerTxnVol	☐	☐	
File Footer (FFTR)	5	HEADERTXNAMT	C1-TranDtlStageUpload/headerTxnAmt	☐	☐	

Figure 18: File Transformation - File Header

   b. If "File Footer Required" is marked as 'true' then, "Transformation Details" are required to be configured for Footer.



Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Required	Record Identifier	Default Value
Field Detail (FDTL)	0	UDFNBR11	C1-TranDtlStageUpload/0/trandtl/udfNbr11	☐	☐	
Field Detail (FDTL)	1	UDFAMT8	C1-TranDtlStageUpload/0/trandtl/udfAmt8	☐	☐	
Field Detail (FDTL)	2	UDFAMT9	C1-TranDtlStageUpload/0/trandtl/udfAmt9	☐	☐	
File Header (FHDR)	0	NUMOFRECORDS		☐	☐	
File Header (FHDR)	1	TXNSOURCECD	C1-TranDtlStageUpload/txnSourceCd	☐	☐	
File Header (FHDR)	2	TXNHEADERDTTM	C1-TranDtlStageUpload/txnHeaderDttm	☐	☐	
File Header (FHDR)	3	HEADERNBRRECS	C1-TranDtlStageUpload/headerNbrRecs	☐	☐	
File Footer (FFTR)	4	HEADERTXNVOL	C1-TranDtlStageUpload/headerTxnVol	☐	☐	
File Footer (FFTR)	5	HEADERTXNAMT	C1-TranDtlStageUpload/headerTxnAmt	☐	☐	

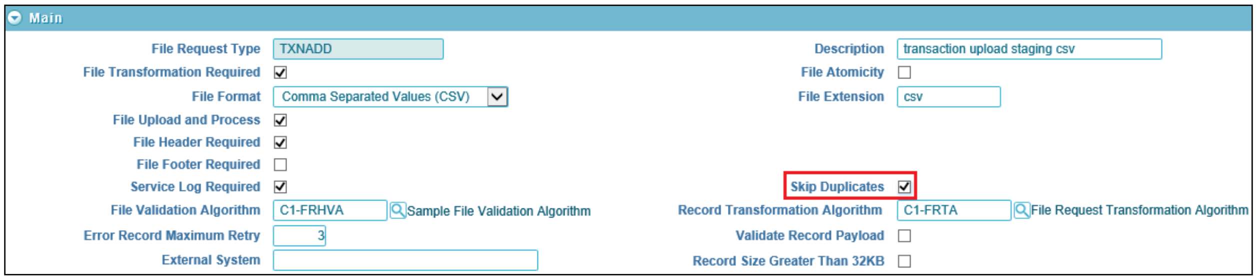
Figure 19: File Transformation – File Footer

You can also view file header and footer details for the files with complete or pending status. This is possible using the file upload dashboard.

For information on how to view the file header and footer details, refer to Viewing File Header and Footer Details section in *File Upload Interface User Guide*.

6.6 Ignoring or Skipping Duplicate Records in a File

1. To ignore or skip duplicate records in a file select **Skip Duplicates** check box present in **Main** section of **File Request Type** window. This will set the flag as True.



Main

File Request Type	TXNADD	Description	transaction upload staging csv
File Transformation Required	☑	File Atomicity	☐
File Format	Comma Separated Values (CSV)	File Extension	csv
File Upload and Process	☑		
File Header Required	☑		
File Footer Required	☐		
Service Log Required	☑	Skip Duplicates	☑
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry	3	Validate Record Payload	☐
External System		Record Size Greater Than 32KB	☐

Figure 20: Ignore or Skip Duplicate Records

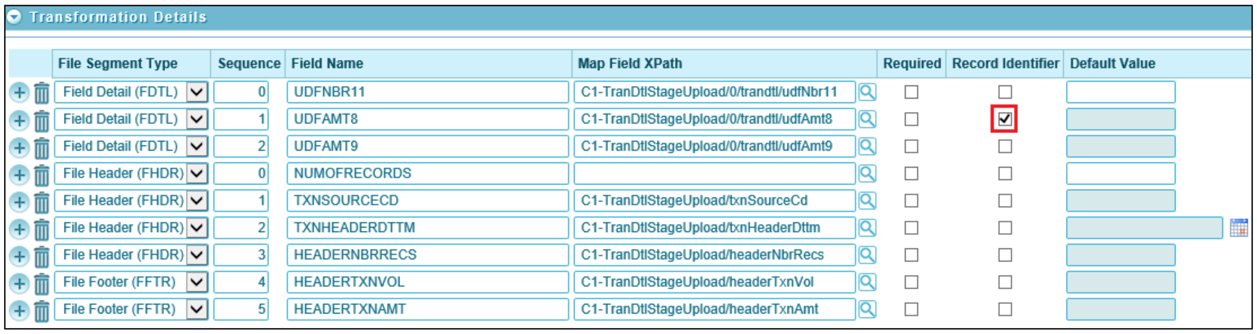
2. Duplicate records can be categorized in two ways:

   a. Duplicate record within a same file. A sample file with duplicate records is represented below:

```
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00||||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L5
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00||||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L4
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00||||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L4
```

   - The duplicate records will be uploaded with Ignore status and marked "IGN" and will not be processed.

Note: This duplicity is identified on the basis of configured "Record Identifier" in Transformation detail section of File Request Type.



Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Required	Record Identifier	Default Value
Field Detail (FDTL)	0	UDFNBR11	C1-TranDtlStageUpload/0/trandtl/udfNbr11	☐	☐	
Field Detail (FDTL)	1	UDFAMT8	C1-TranDtlStageUpload/0/trandtl/udfAmt8	☐	☑	
Field Detail (FDTL)	2	UDFAMT9	C1-TranDtlStageUpload/0/trandtl/udfAmt9	☐	☐	
File Header (FHDR)	0	NUMOFRECORDS		☐	☐	
File Header (FHDR)	1	TXNSOURCECD	C1-TranDtlStageUpload/txnSourceCd	☐	☐	
File Header (FHDR)	2	TXNHEADERDTTM	C1-TranDtlStageUpload/txnHeaderDttm	☐	☐	
File Header (FHDR)	3	HEADERNBRRECS	C1-TranDtlStageUpload/headerNbrRecs	☐	☐	
File Footer (FFTR)	4	HEADERTXNVOL	C1-TranDtlStageUpload/headerTxnVol	☐	☐	
File Footer (FFTR)	5	HEADERTXNAMT	C1-TranDtlStageUpload/headerTxnAmt	☐	☐	

Figure 21: Record Identifier

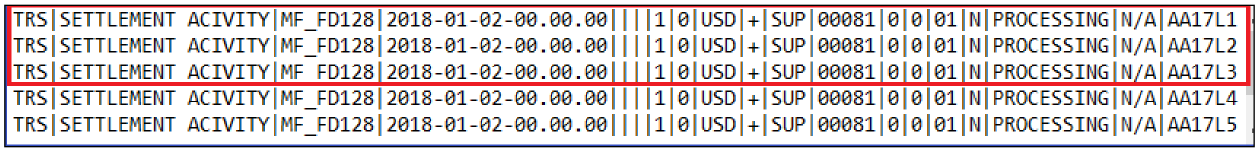
   b. Records that have been already processed in previous file upload batch execution. There are two possible scenarios:

      i. A text file has three records. This file will be processed using file upload batch and the records will be uploaded in ORMB system. A sample file is represented below:

```
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00||||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L1
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00||||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L2
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00||||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L3
```

SampleFile_1.txt

      ii. A text file has five records, out of which first three records have been already uploaded and processed using 'SampleFile_1.txt'. The duplicate records will be uploaded with "SKIP" status and will be skipped while processing. A sample file is represented below:



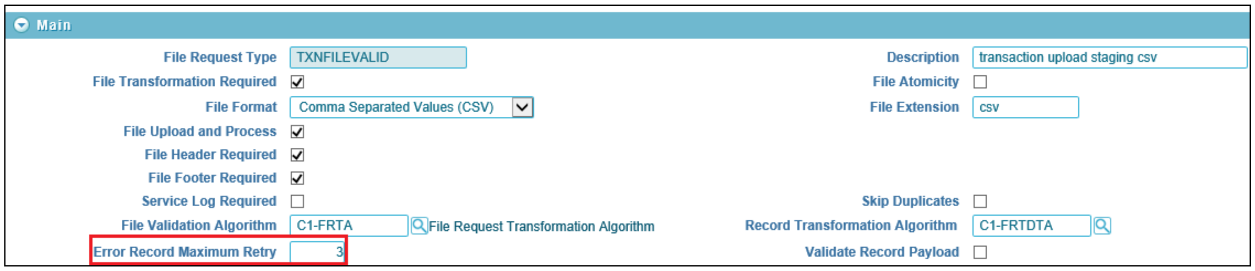
```
TRS|SETTLEMENT ACIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L1
TRS|SETTLEMENT ACIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L2
TRS|SETTLEMENT ACIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L3
TRS|SETTLEMENT ACIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L4
TRS|SETTLEMENT ACIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L5
```

SampleFile_2.txt

Note: These duplicity is identified on the basis of record existence in “CI_FILE_REQUEST_DETAIL” table using “hash key”.

6.7 Marking the Default Status of Failed Records to "Retry" for Reprocessing

1. You need to configure a value for **Error Record Maximum Retry** parameter in **Main** section of **File Request Type** window. The 'Error Record Maximum Retry' field defines the number of attempts allowed to reprocess the failed record. The value should be greater than zero.

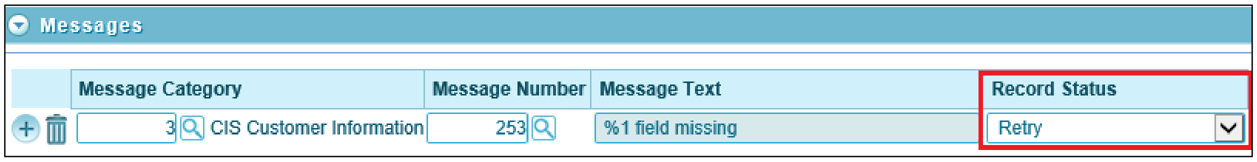


Main

File Request Type	TXNFILEVALID	Description	transaction upload staging csv
File Transformation Required	✓	File Atomicity	☐
File Format	Comma Separated Values (CSV)	File Extension	csv
File Upload and Process	✓		
File Header Required	✓		
File Footer Required	✓		
Service Log Required	☐	Skip Duplicates	☐
File Validation Algorithm	C1-FRTA File Request Transformation Algorithm	Record Transformation Algorithm	C1-FRTDTA
Error Record Maximum Retry	3	Validate Record Payload	☐

Figure 22: Update Failed Record

2. To configure all those error messages for which the failed records should be marked with **Retry** status, select **Retry** from **Record Status** drop-down list in the **Messages** section.



Messages

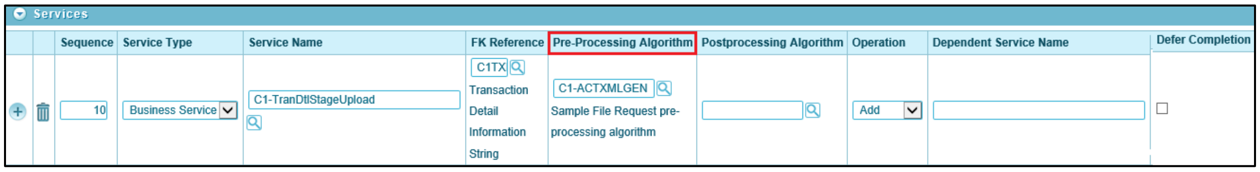
Message Category	Message Number	Message Text	Record Status
3 CIS Customer Information	253	%1 field missing	Retry

Figure 23: Update Failed Record Error Message

3. All failed records which are not configured in Messages section of File Request Type will be marked with "Error" status.

6.8 Overriding the Service Level Operation at Runtime

1. You can override service level operations using pre-processing algorithm.



Services

		Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
		10	Business Service	C1-TranDtlStageUpload	C1TX Transaction Detail Information String	C1-ACTXMLGEN Sample File Request pre-processing algorithm		Add		☐

Figure 24: Override Service Level

2. The pre-processing algorithm implements the '**setOperation(String operation)**' method to override service level operations.
3. Select **Add** from the **Operation** drop-down list to override the service level operation.

6.9 Skipping Service Execution for a Particular Record

1. You can skip service execution for a particular record using Pre-Processing Algorithm.
2. The algorithm implements the '**isSkipServiceExecution()**' method.

6.10 Executing Dependent Service

1. The **Dependent Service Name** field allows you to address the Payload nesting level and dependent service execution for two independent entities defined in ORMB structure.
2. This signifies parent-child relationship. For example, the ORMB system has 2 independent entities, 'Person' & 'Account' with each entity having their own Maintenance Object (MO). These entities will further have 'Business Object (BO)' derived from the corresponding MO.
3. The Business Object has its own XML schema which is specific to the entity.
4. The legacy system allows you to generate a file with record XML having 'Account' nested in 'Person'. To configure the service, you need to perform following steps:

   i. Click **Add** ( ) icon to add a new sequence.

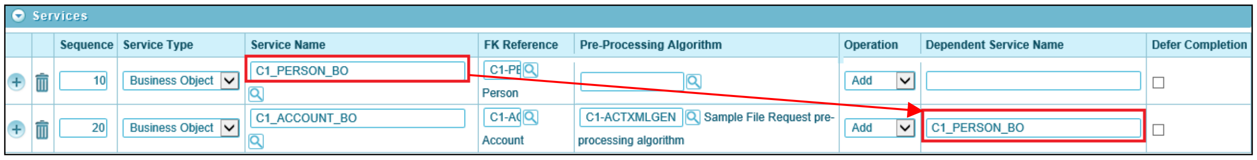
   ii. Specify sequence ID in **Sequence** field.

   iii. Select **Service Type** as Business Object from the drop-down list.

   iv. Enter **Service Name** for which you need to configure dependent service name. For example, C1_ACCOUNT_BO.

   v. Specify FK Reference and Pre-Processing Algorithm.

   vi. Enter **Dependent Service Name**. For example, C1_PERSON_BO.



Services

		Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Operation	Dependent Service Name	Defer Completion
+	🗑	10	Business Object	C1_PERSON_BO	C1-PE Person		Add		☐
+	🗑	20	Business Object	C1_ACCOUNT_BO	C1-AC Account	C1-ACTXMLGEN Sample File Request pre-processing algorithm	Add	C1_PERSON_BO	☐

Figure 25: Dependent Service

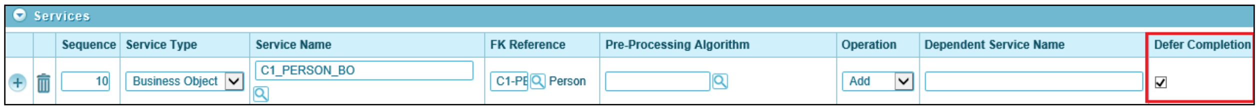
5. Dependent service name configuration helps to get the parent's (Person) service 'Primary key' as an input to its child's (Account) service pre-processing algorithm.

6.11 Deferring Completion of Processed Request

1. It is a flag used to defer the completion of successfully processed request. The final status will be updated once corresponding Business Object Life cycle is completed.
2. It can be used for those Business Objects which have a predefined lifecycle. If service has 'Defer Completion' marked as 'true', then all the successfully processed records for this service will be updated with 'In-Progress' status.

Note: 'Defer Completion' is only used for record status update to legacy system.

3. With this status information, a legacy system can decide an action on the other dependent data upload. For example, if 'Person' Business Object has a lifecycle then, no corresponding 'Account' details will be uploaded until there is an update of 'Person' Business Object lifecycle completion.



		Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Operation	Dependent Service Name	Defer Completion
		10	Business Object	C1_PERSON_BO	C1-PE Person		Add		✓

Figure 26: Defer Completion

6.12 Supporting Client Defined Date Format

1. File Upload Interface now supports client defined dates while uploading and transforming file records.
2. This can be done by giving reference to display profile ID at the time of defining or editing or making a copy of a file request type.

Prerequisites

To link display profile ID with file request type, you should have:

- Display Profile defined in the application.

Procedure

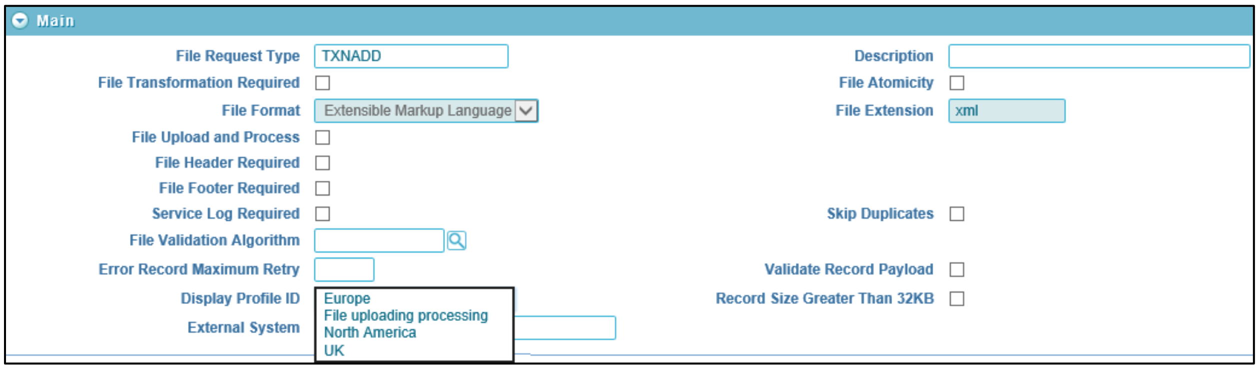
To link display profile id with file request type, you need to:

1. Enter File Request Type name.
2. Select required fields.
3. Select value from the **Display Profile ID** drop-down list.

Note:

The file request should have the same date or time format as specified while defining a display profile.

Each individual File Request Type can support only a single date format.



Main

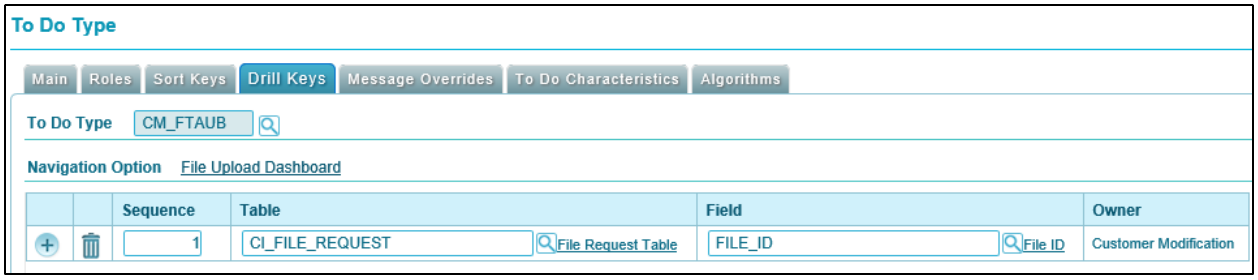
File Request Type	TXNADD	Description	
File Transformation Required	☐	File Atomicity	☐
File Format	Extensible Markup Language	File Extension	xml
File Upload and Process	☐		
File Header Required	☐		
File Footer Required	☐		
Service Log Required	☐	Skip Duplicates	☐
File Validation Algorithm			
Error Record Maximum Retry		Validate Record Payload	☐
Display Profile ID	Europe File uploading processing North America UK	Record Size Greater Than 32KB	☐
External System			

Figure 27: Display Profile ID

6.13 Viewing To Do Entries for Failed Files

1. If an exception occurs while executing the File Upload and Transformation batch, you can notify the user about such exception by generating a 'To Do'. You can view the exception details within **To Do Entry**.
2. You can view the total number of To Do Entries that are open or being worked on or completed for each To Do Type respective to file transformation and upload process.
3. The To Do will be created using its corresponding To Do Type.

Note: When defining a To Do Type, it is mandatory to set up drill key of a file ID.



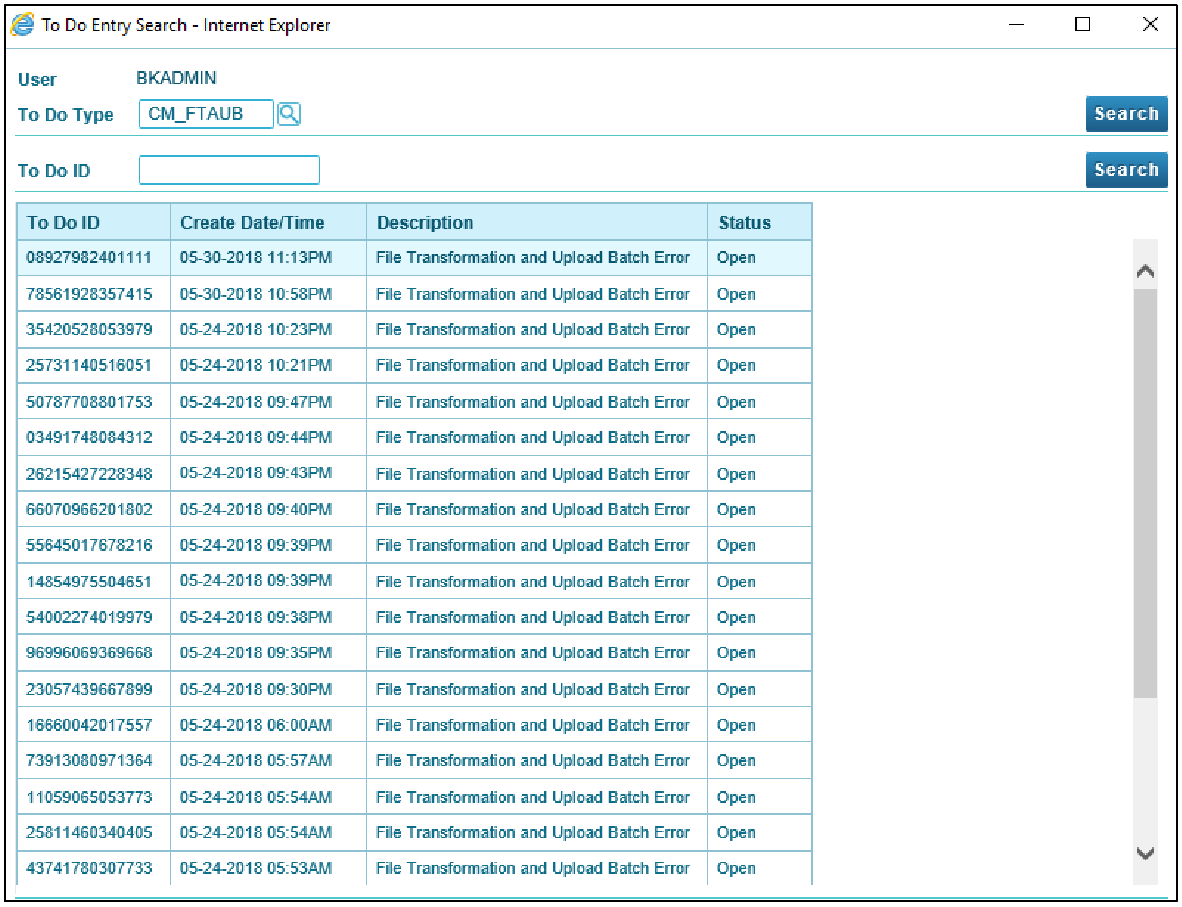
To Do Type: CM_FTAUB

Navigation Option: File Upload Dashboard

Sequence	Table		Field		Owner
1	CI_FILE_REQUEST	File Request Table	FILE_ID	File ID	Customer Modification

Figure 28: To Do Type - Drill Keys

4. Once you create a To Do for capturing File Transformation and Upload Batch Error, then on submitting the respective file request, the file transformation and upload process creates a To Do for the user to review the file request. You can perform various actions or modify details about a To Do entry.
5. To view to do entries:
   i. From the **Admin** menu, select **To Do** and then click **To Do Entry**. A sub-menu appears.
   ii. Click **Search** option from the **To Do Entry** sub-menu. The **To Do Entry Search** window appears.
   iii. Enter name of **To Do Type** in **To Do Type** field and click **Search**.
   iv. The grid that follows contains the To Do entries that match your criteria.


To Do Entry Search - Internet Explorer

User BKADMIN

To Do Type CM_FTAUB Search

To Do ID Search

To Do ID	Create Date/Time	Description	Status
08927982401111	05-30-2018 11:13PM	File Transformation and Upload Batch Error	Open
78561928357415	05-30-2018 10:58PM	File Transformation and Upload Batch Error	Open
35420528053979	05-24-2018 10:23PM	File Transformation and Upload Batch Error	Open
25731140516051	05-24-2018 10:21PM	File Transformation and Upload Batch Error	Open
50787708801753	05-24-2018 09:47PM	File Transformation and Upload Batch Error	Open
03491748084312	05-24-2018 09:44PM	File Transformation and Upload Batch Error	Open
26215427228348	05-24-2018 09:43PM	File Transformation and Upload Batch Error	Open
66070966201802	05-24-2018 09:40PM	File Transformation and Upload Batch Error	Open
55645017678216	05-24-2018 09:39PM	File Transformation and Upload Batch Error	Open
14854975504651	05-24-2018 09:39PM	File Transformation and Upload Batch Error	Open
54002274019979	05-24-2018 09:38PM	File Transformation and Upload Batch Error	Open
96996069369668	05-24-2018 09:35PM	File Transformation and Upload Batch Error	Open
23057439667899	05-24-2018 09:30PM	File Transformation and Upload Batch Error	Open
16660042017557	05-24-2018 06:00AM	File Transformation and Upload Batch Error	Open
73913080971364	05-24-2018 05:57AM	File Transformation and Upload Batch Error	Open
11059065053773	05-24-2018 05:54AM	File Transformation and Upload Batch Error	Open
25811460340405	05-24-2018 05:54AM	File Transformation and Upload Batch Error	Open
43741780307733	05-24-2018 05:53AM	File Transformation and Upload Batch Error	Open

Figure 29: To Do Entry Search Grid

The following information appears:

Column Name	Description
To Do ID	Used to indicate the unique identifier of the To Do entry.
Create Date/Time	Used to indicate the date and time the To Do entry was created by the system.
Description	Used to indicate the description of the To Do Type.
Status	Used to indicate the current status of the To Do entry. The valid values are: • Open • Being Worked On • Complete

v. Click on text portion in any of the columns to view the respective To Do Details.

6.14 Post Processing Algorithm Support for File Request

1. You can to define a post processing algorithm which is used to undertake some post-processing activities after successful processing of a record.
2. To attach a post-processing algorithm to file request type, specify the post-processing algorithm code in Postprocessing Algorithm field within Services section.

7. Updating Records marked with 'Error' or 'Pending' status

When updating records marked with 'Error' or 'Pending' status, you have two possible modes:

1. Update records marked with 'Error' status to 'Retry' status
2. Update records marked with 'Pending' status to 'Error' status

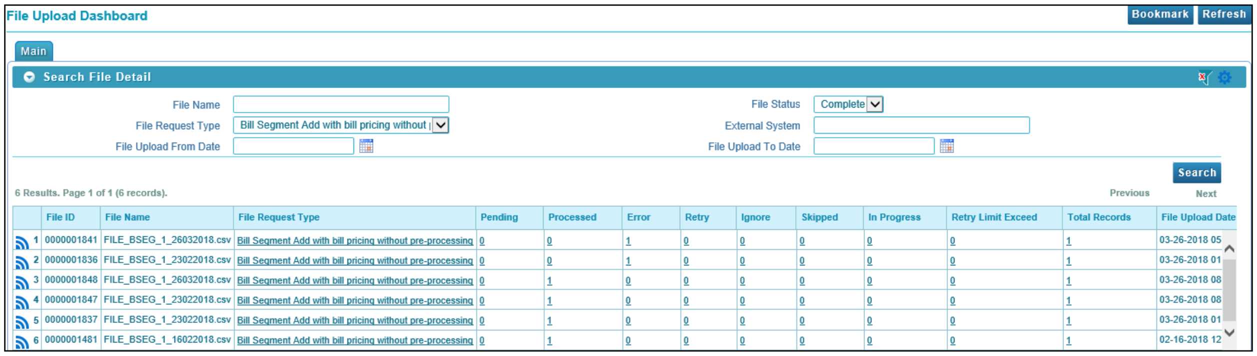
ORMB provides you two options to update records.

1. File Upload Dashboard
2. File Request Status Update Batch

7.1 File Upload Dashboard

This is used to update status for less number of records. To update records with "Error" to "Retry" status, you need to follow below steps:

1. Click the **Menu** link in the Application toolbar. A list appears.
2. Select **Tools** from the list. A sub-menu appears.
3. Click **File Upload Dashboard** option. The **Search File Detail** window appears.
4. Enter either **File Name** or select **File Request Type** from the drop-down list. Click **Search**.
5. The file details that meet the search criteria appear in the Search Results section in a tabular format.



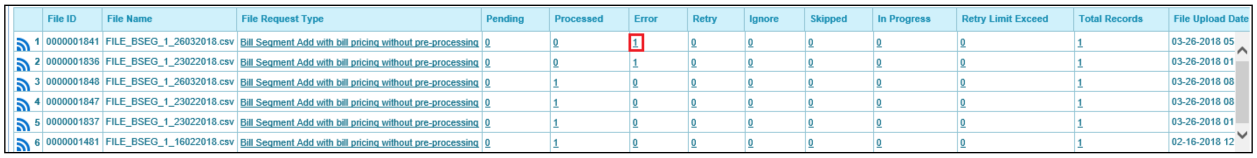
File Name	
File Request Type	Bill Segment Add with bill pricing without (
File Upload From Date	
File Status	Complete
External System	
File Upload To Date	

6 Results. Page 1 of 1 (6 records).

	File ID	File Name	File Request Type	Pending	Processed	Error	Retry	Ignore	Skipped	In Progress	Retry Limit Exceed	Total Records	File Upload Date
1	0000001841	FILE_BSEG_1_26032018.csv	Bill Segment Add with bill pricing without pre-processing	0	0	1	0	0	0	0	0	1	03-26-2018 05
2	0000001836	FILE_BSEG_1_23022018.csv	Bill Segment Add with bill pricing without pre-processing	0	0	1	0	0	0	0	0	1	03-26-2018 01
3	0000001848	FILE_BSEG_1_26032018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	03-26-2018 08
4	0000001847	FILE_BSEG_1_23022018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	03-26-2018 08
5	0000001837	FILE_BSEG_1_23022018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	03-26-2018 01
6	0000001481	FILE_BSEG_1_16022018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	02-16-2018 12

Figure 30: File Upload Dashboard

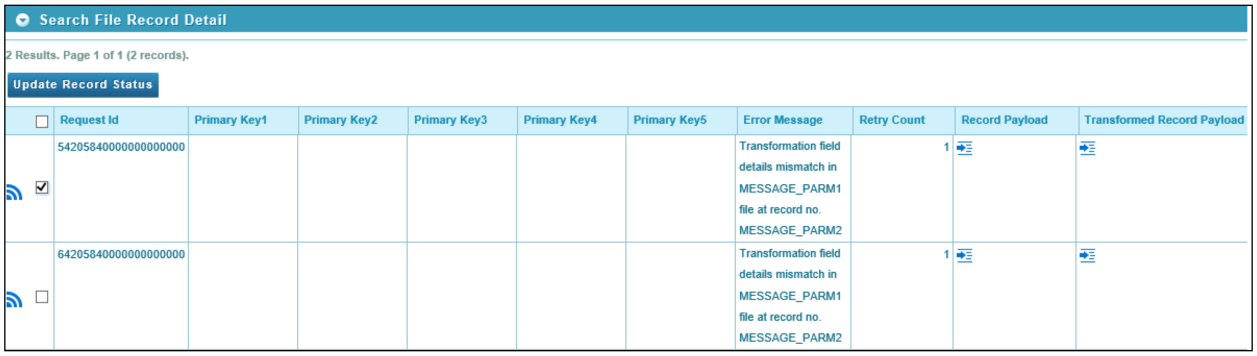
6. The counts in respective Status columns represent the number of records. The numbers are linked to Search File Record Detail form.
7. Click the number in **Error** column to view the record details.



	File ID	File Name	File Request Type	Pending	Processed	Error	Retry	Ignore	Skipped	In Progress	Retry Limit Exceed	Total Records	File Upload Date
1	0000001841	FILE_BSEG_1_26032018.csv	Bill Segment Add with bill pricing without pre-processing	0	0	1	0	0	0	0	0	1	03-26-2018 05
2	0000001836	FILE_BSEG_1_23022018.csv	Bill Segment Add with bill pricing without pre-processing	0	0	1	0	0	0	0	0	1	03-26-2018 01
3	0000001848	FILE_BSEG_1_26032018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	03-26-2018 08
4	0000001847	FILE_BSEG_1_23022018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	03-26-2018 08
5	0000001837	FILE_BSEG_1_23022018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	03-26-2018 01
6	0000001481	FILE_BSEG_1_16022018.csv	Bill Segment Add with bill pricing without pre-processing	0	1	0	0	0	0	0	0	1	02-16-2018 12

Figure 31: Error Records

8. **Search File Record Detail** window appears. Select records for which "Retry" status is to be updated.

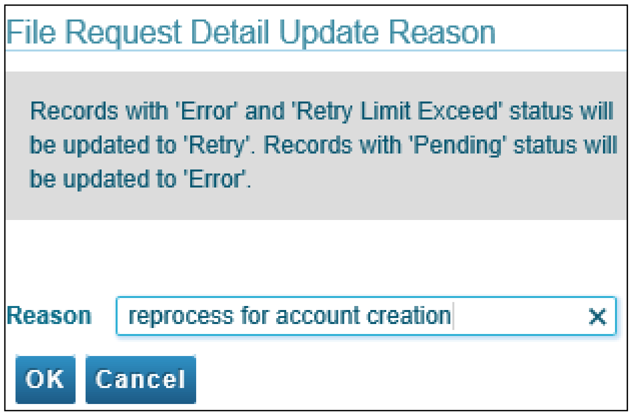


2 Results. Page 1 of 1 (2 records).

	Request Id	Primary Key1	Primary Key2	Primary Key3	Primary Key4	Primary Key5	Error Message	Retry Count	Record Payload	Transformed Record Payload
☑	54205840000000000000						Transformation field details mismatch in MESSAGE_PARM1 file at record no. MESSAGE_PARM2	1		
☐	64205840000000000000						Transformation field details mismatch in MESSAGE_PARM1 file at record no. MESSAGE_PARM2	1		

Figure 32: Search File Record Detail Screen

9. Click **Update Record Status**. The **File Request Detail Update Reason** dialog box appears.



Records with 'Error' and 'Retry Limit Exceed' status will be updated to 'Retry'. Records with 'Pending' status will be updated to 'Error'.

Reason: reprocess for account creation

Figure 33: File Request Detail Update Reason

10. Specify the reason and click **OK**.

Similarly, you need to follow above mentioned steps to update records with “Pending” to “Error” status.

Note: These is an online process, for bulk update it will have a performance impact.

7.2 File Request Status Update Batch

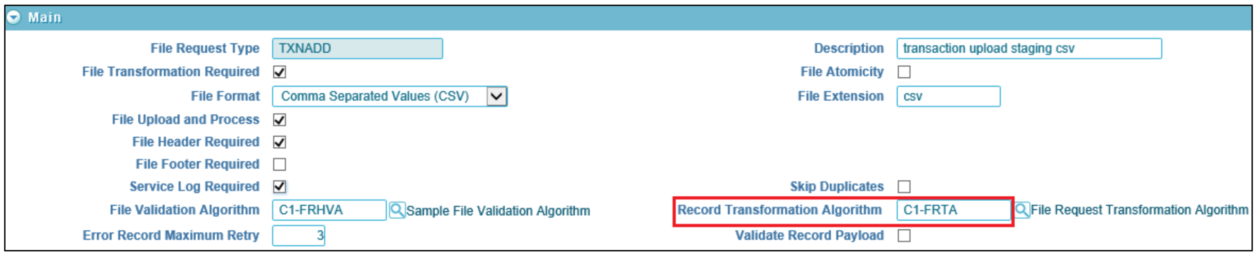
This batch can be used for bulk record status update from “**Error**” to “**Retry**” status or “**Pending**” to “**Error**” status.

8. Transforming Data

8.1 Transforming File Record in Client Supported Format into ORMB Conform XML

1. You can transform files in Comma Separated Values (CSV) or Extensible Markup Language (XML) or Fixed Position or JavaScript Object Notation (JSON) or Pipe Separated Values (PSV) or Tilde Separated Values (TSV) formats to ORMB conforming XML using "Record Transformation Algorithm".
2. "Record Transformation Algorithm" implements "FileRequestTranformationAlgorithmSpot".
3. To transform file record, specify File Request Transformation algorithm in Record Transformation Algorithm field present in Main section. You can also use the **Search** (🔍) icon corresponding to Record Transformation Algorithm field.

Note: Ensure that File Transformation Required field is selected before specifying the algorithm.


Main

File Request Type	TXNADD	Description	transaction upload staging csv
File Transformation Required	✓	File Atomicity	☐
File Format	Comma Separated Values (CSV)	File Extension	csv
File Upload and Process	✓		
File Header Required	✓		
File Footer Required	☐		
Service Log Required	✓	Skip Duplicates	☐
File Validation Algorithm	C1-FRHVA Sample File Validation Algorithm	Record Transformation Algorithm	C1-FRTA File Request Transformation Algorithm
Error Record Maximum Retry	3	Validate Record Payload	☐

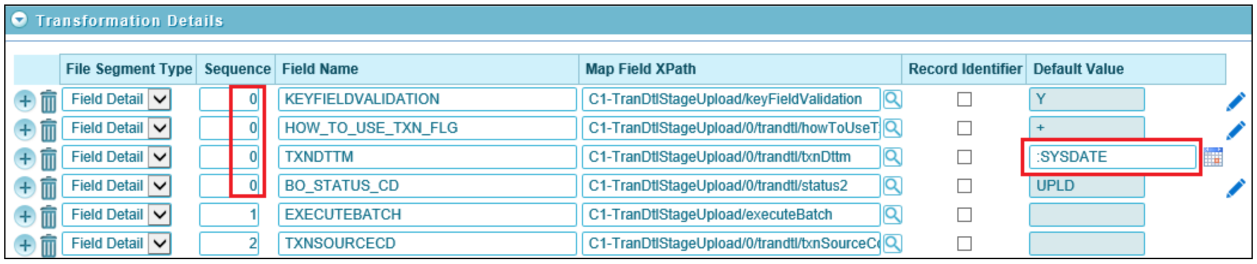
Figure 34: Record Transformation Algorithm

8.2 Configuring a Default Value for a Particular Field

1. You can configure default value corresponding to a field. The default value for Sequence should be zero.

Note: Sequence zero is reserved for default value configuration.

2. To set default value for fields with 'Date' as datatype, you can use **Date Picker** ( ) or any of the predefined values listed below.



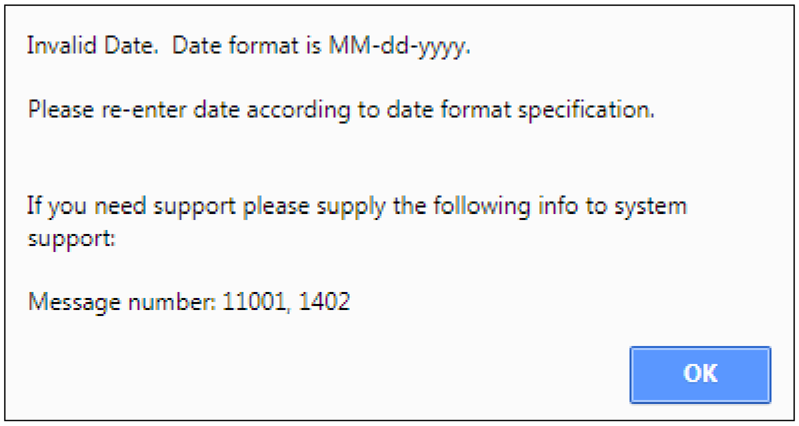
Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Record Identifier	Default Value
Field Detail	0	KEYFIELDVALIDATION	C1-TranDtlStageUpload/keyFieldValidation	☐	Y
Field Detail	0	HOW_TO_USE_TXN_FLG	C1-TranDtlStageUpload/0/trandtl/howToUseT	☐	+
Field Detail	0	TXNDTTM	C1-TranDtlStageUpload/0/trandtl/txnDttm	☐	:SYSDATE
Field Detail	0	BO_STATUS_CD	C1-TranDtlStageUpload/0/trandtl/status2	☐	UPLD
Field Detail	1	EXECUTEBATCH	C1-TranDtlStageUpload/executeBatch	☐	
Field Detail	2	TXNSOURCECD	C1-TranDtlStageUpload/0/trandtl/txnSourceC	☐	

Figure 35: Transformation Details - Default Value

- :BUS_DATE for Business Date time - relates to process date time
- :SYSDATE for System date time - relates to System Date Time
- :STD_DATE for Standard date time - relates to LOCALE date time

3. An error message appears. If you are using predefined values, click **OK** to ignore the warning message.



Invalid Date. Date format is MM-dd-yyyy.

Please re-enter date according to date format specification.

If you need support please supply the following info to system support:

Message number: 11001, 1402

4. To update File Request Type detail, click **Edit** ( ) icon. This enables the 'Default Value' field and fetches the datatype of that corresponding field. The updated value is then used to set the default value.

8.2.1 Applying Default Values Set in File Validation Algorithm to a Field

1. File Upload Interface provides you with set of five parameters which you can use while transforming records. These parameters are defined using setter methods for default1/2/3/4/5 in file validation algorithm.

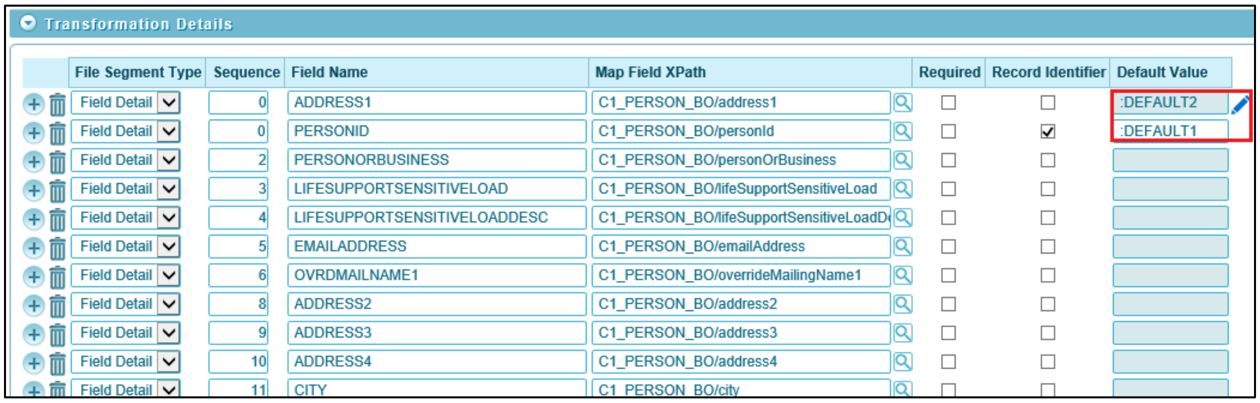
Prerequisite

To refer default parameter values, you should have

- File Validation Algorithm attached in Main section.

Procedure

1. To refer these default parameters, you can use either of the following constants in **Default Value** field within **Transformation Details** section.
   - ':DEFAULT1'
   - ':DEFAULT2'
   - ':DEFAULT3'
   - ':DEFAULT4'
   - ':DEFAULT5'
2. When you use any of the above constants, the value corresponding to the defined parameter is set as default value to the respective field name.



Transformation Details

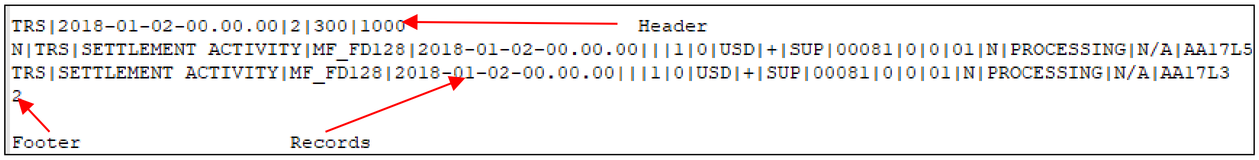
File Segment Type	Sequence	Field Name	Map Field XPath	Required	Record Identifier	Default Value
Field Detail	0	ADDRESS1	C1_PERSON_BO/address1	☐	☐	:DEFAULT2
Field Detail	0	PERSONID	C1_PERSON_BO/personId	☐	☑	:DEFAULT1
Field Detail	2	PERSONORBUSINESS	C1_PERSON_BO/personOrBusiness	☐	☐	
Field Detail	3	LIFESUPPORTSENSITIVELOAD	C1_PERSON_BO/lifeSupportSensitiveLoad	☐	☐	
Field Detail	4	LIFESUPPORTSENSITIVELOADDESC	C1_PERSON_BO/lifeSupportSensitiveLoadD	☐	☐	
Field Detail	5	EMAILADDRESS	C1_PERSON_BO/emailAddress	☐	☐	
Field Detail	6	OVRDMAILNAME1	C1_PERSON_BO/overrideMailingName1	☐	☐	
Field Detail	8	ADDRESS2	C1_PERSON_BO/address2	☐	☐	
Field Detail	9	ADDRESS3	C1_PERSON_BO/address3	☐	☐	
Field Detail	10	ADDRESS4	C1_PERSON_BO/address4	☐	☐	
Field Detail	11	CITY	C1_PERSON_BO/city	☐	☐	

Figure 36: Applying Default Values Set in File Validation Algorithm to a Field

8.3 Mapping Data Line or Record in a File

1. You can map record in a file using Transformation Details section. Using Transformation Detail configuration, mapping can be done only for files in CSV or XML or Fixed Position or JavaScript Object Notation (JSON) or Pipe Separated Values (PSV) or Tilde Separated Values (TSV) formats.

   A sample file in PSV format is represented below. The entries are separated by '|' (pipe).



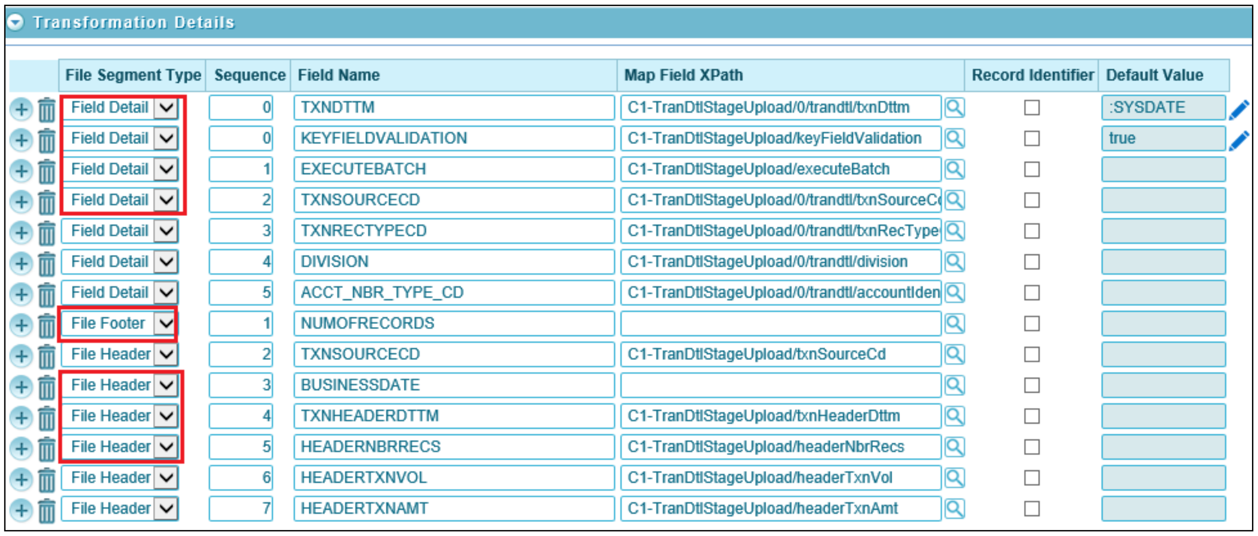
```
TRS|2018-01-02-00.00.00|2|300|1000
N|TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L5
TRS|SETTLEMENT ACTIVITY|MF_FD128|2018-01-02-00.00.00|||1|0|USD|+|SUP|00081|0|0|01|N|PROCESSING|N/A|AA17L3
2
```

Header
Footer
Records

Sample_1.dat

2. File is divided into three segments:
   - File Header - it is the first row in the file.
   - File records
   - File Footer - it is the last row in the file.

   The File Segment Type is a lookup field with values:
   - Field Detail
   - File Footer
   - File Header



Transformation Details

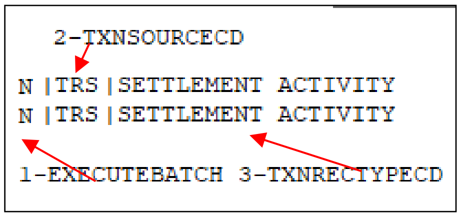
File Segment Type	Sequence	Field Name	Map Field XPath	Record Identifier	Default Value
Field Detail	0	TXNDTTM	C1-TranDtlStageUpload/0/trandtl/txnDttm	☐	:SYSDATE
Field Detail	0	KEYFIELDVALIDATION	C1-TranDtlStageUpload/keyFieldValidation	☐	true
Field Detail	1	EXECUTEBATCH	C1-TranDtlStageUpload/executeBatch	☐	
Field Detail	2	TXNSOURCECD	C1-TranDtlStageUpload/0/trandtl/txnSourceC	☐	
Field Detail	3	TXNRECTYPECD	C1-TranDtlStageUpload/0/trandtl/txnRecType	☐	
Field Detail	4	DIVISION	C1-TranDtlStageUpload/0/trandtl/division	☐	
Field Detail	5	ACCT_NBR_TYPE_CD	C1-TranDtlStageUpload/0/trandtl/accountIden	☐	
File Footer	1	NUMOFRECORDS		☐	
File Header	2	TXNSOURCECD	C1-TranDtlStageUpload/txnSourceCd	☐	
File Header	3	BUSINESSDATE		☐	
File Header	4	TXNHEADERDTTM	C1-TranDtlStageUpload/txnHeaderDttm	☐	
File Header	5	HEADERNBRRECS	C1-TranDtlStageUpload/headerNbrRecs	☐	
File Header	6	HEADERTXNVOL	C1-TranDtlStageUpload/headerTxnVol	☐	
File Header	7	HEADERTXNAMT	C1-TranDtlStageUpload/headerTxnAmt	☐	

Figure 37: Mapping data line

3. All these three segments in transformation detail configuration are independent of each other. Default values can be configured for any of these segments.
4. Multiple number of file records should have same number of fields. For example, if a file has 10 records with seven fields, then all those 10 records should have seven fields with or without values.
5. There are two different ways to configure data line mapping:
   a. For files in CSV or PSV or TSV format,

i. Mapping is done by defining “Sequence”.

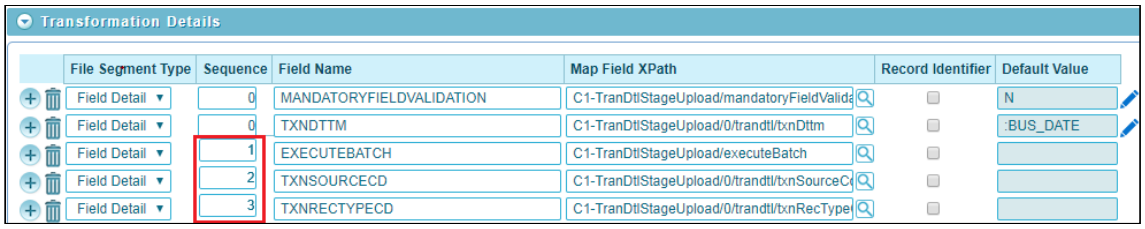
A sample file is represented below:



```
  2-TXNSOURCECD
N |TRS |SETTLEMENT ACTIVITY
N |TRS |SETTLEMENT ACTIVITY

1-EXECUTEBATCH 3-TXNRECTYPECD
```

Sample File.txt



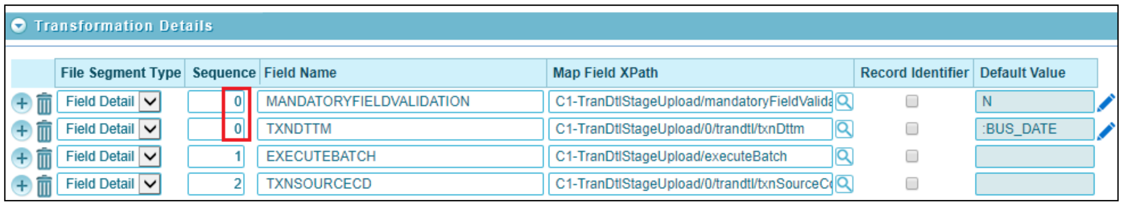
Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Record Identifier	Default Value
Field Detail	0	MANDATORYFIELDVALIDATION	C1-TranDtlStageUpload/mandatoryFieldValida	☐	N
Field Detail	0	TXNDTTM	C1-TranDtlStageUpload/0/trandtl/txnDttm	☐	:BUS_DATE
Field Detail	1	EXECUTEBATCH	C1-TranDtlStageUpload/executeBatch	☐	
Field Detail	2	TXNSOURCECD	C1-TranDtlStageUpload/0/trandtl/txnSourceC	☐	
Field Detail	3	TXNRECTYPECD	C1-TranDtlStageUpload/0/trandtl/txnRecType	☐	

Figure 38: Sample File Mapping

ii. For file data mapping, ‘Sequence’ index starts with 1.

iii. Sequence with Zero index is reserved for mapping default value.



Transformation Details

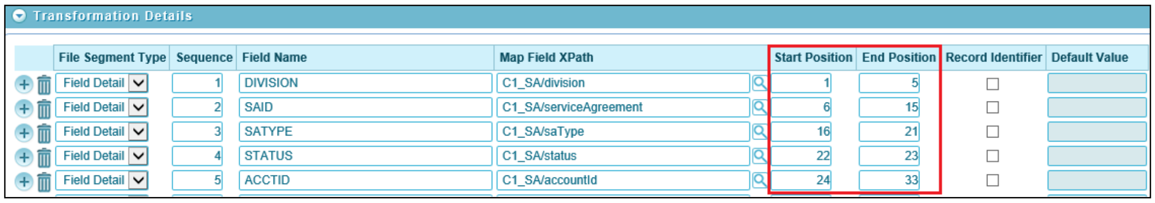
File Segment Type	Sequence	Field Name	Map Field XPath	Record Identifier	Default Value
Field Detail	0	MANDATORYFIELDVALIDATION	C1-TranDtlStageUpload/mandatoryFieldValida	☐	N
Field Detail	0	TXNDTTM	C1-TranDtlStageUpload/0/trandtl/txnDttm	☐	:BUS_DATE
Field Detail	1	EXECUTEBATCH	C1-TranDtlStageUpload/executeBatch	☐	
Field Detail	2	TXNSOURCECD	C1-TranDtlStageUpload/0/trandtl/txnSourceC	☐	

Figure 39: Sample File Mapping Default Value

iv. Same ‘Sequence’ can be mapped for multiple fields.

b. For files in ‘Fixed Position’ format,

i. Mapping is done using ‘Start Position’ and ‘End Position’.



Transformation Details

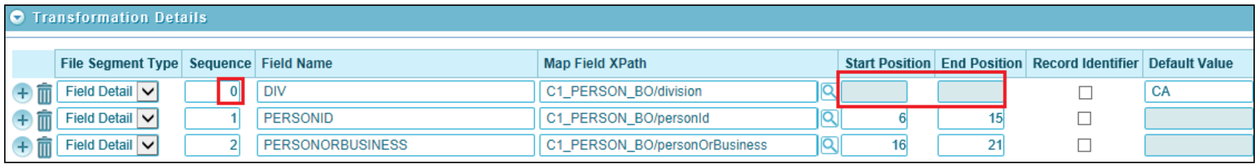
File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Record Identifier	Default Value
Field Detail	1	DIVISION	C1_SA/division	1	5	☐	
Field Detail	2	SAID	C1_SA/serviceAgreement	6	15	☐	
Field Detail	3	SATYPE	C1_SA/saType	16	21	☐	
Field Detail	4	STATUS	C1_SA/status	22	23	☐	
Field Detail	5	ACCTID	C1_SA/accountId	24	33	☐	

Figure 40: File Mapping – Fixed Position

ii. ‘Start Position’ index starts with 1.

iii. Sequence with ‘Zero’ index can be used for mapping default value.

Note that it is not required to define ‘Start Position’ and ‘End Position’.



Transformation Details

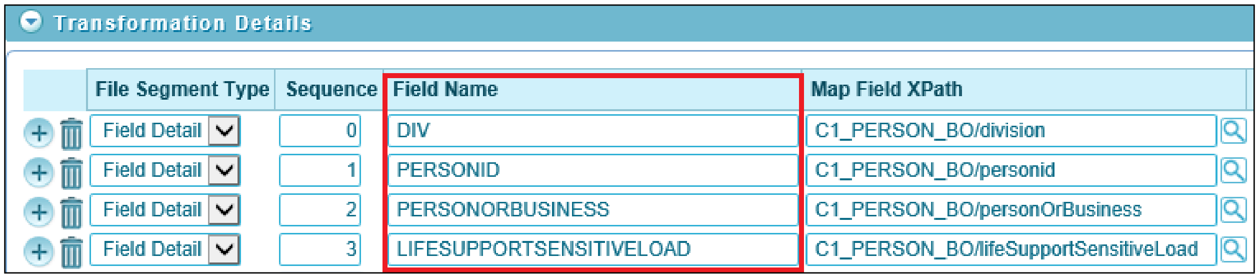
File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Record Identifier	Default Value
Field Detail	0	DIV	C1_PERSON_BO/division			☐	CA
Field Detail	1	PERSONID	C1_PERSON_BO/personId	6	15	☐	
Field Detail	2	PERSONORBUSINESS	C1_PERSON_BO/personOrBusiness	16	21	☐	

Figure 41: File Mapping – Sequence Index

iv. Same positions can be mapped for multiple fields.

8.4 Mapping File Sequence

1. This is a unique user defined field, which will have the mapped file sequence field value. It will be used as column identifier of a file record.
2. It is free text and can have any user defined value.
3. It has to be uniquely defined within its respective segment. Here, segment refers to File Header or File Detail or File Footer.

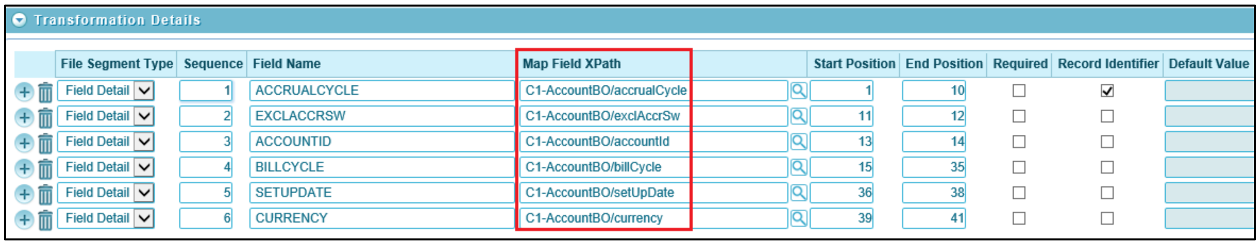

Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath
Field Detail	0	DIV	C1_PERSON_BO/division
Field Detail	1	PERSONID	C1_PERSON_BO/personid
Field Detail	2	PERSONORBUSINESS	C1_PERSON_BO/personOrBusiness
Field Detail	3	LIFESUPPORTSENSITIVELOAD	C1_PERSON_BO/lifeSupportSensitiveLoad

Figure 42: Transformation Details – Field Name

8.5 Using Map Field XPath to Transform Records

1. The Map Field XPath uses ORMB application provided sample Record Transformation Algorithm to transform file record into ORMB conform XML. If you want to use this algorithm, you must provide “**Map Field XPath**” for every configured field.



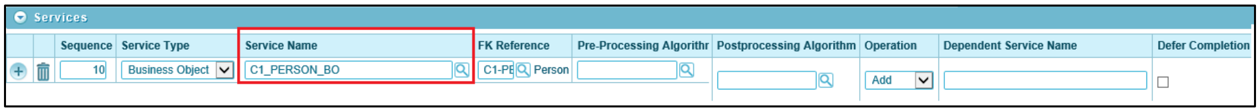
Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Required	Record Identifier	Default Value
Field Detail	1	ACCRUALCYCLE	C1-AccountBO/accrualCycle	1	10	☐	✓	
Field Detail	2	EXCLACCRSW	C1-AccountBO/exclAccrSw	11	12	☐	☐	
Field Detail	3	ACCOUNTID	C1-AccountBO/accountId	13	14	☐	☐	
Field Detail	4	BILLCYCLE	C1-AccountBO/billCycle	15	35	☐	☐	
Field Detail	5	SETUPDATE	C1-AccountBO/setUpDate	36	38	☐	☐	
Field Detail	6	CURRENCY	C1-AccountBO/currency	39	41	☐	☐	

Figure 43: Transformation Details - Map Field XPath

Note: The File Segment Type value must be Field Detail.

2. These will have an ‘XPath’ value with reference to its configured service schema.



Services

Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithr	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
10	Business Object	C1_PERSON_BO	C1-PE Person			Add		☐

Figure 44: Service Name – Xpath Value

Note: You can search ‘xpath’ values using the Search (🔍) icon or enter a free text.

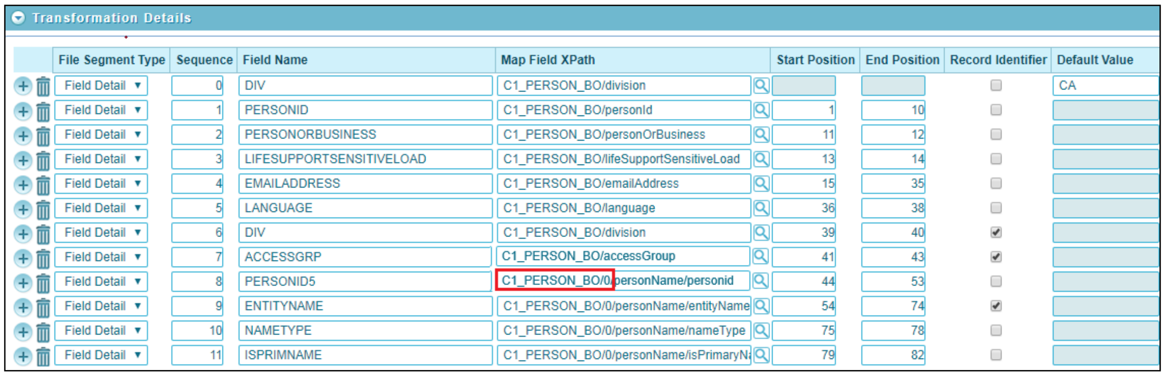
3. Index should be used to configure child entity element xpath in a service schema. To configure child entity element xpath, you need to follow below steps:

   i. Click **Search** (🔍) icon corresponding to Map Field XPath. File request transform map field zone appears.

   ii. Select Service Type from the drop-down list.

   iii. Enter Service Name.

Note: You can select only the child element xpath with index value zero. If you require more than one child elements for a single entity, then you need to select child element xpath with zero’ index and edit the required index. For example, ‘1’,’2’, etc.



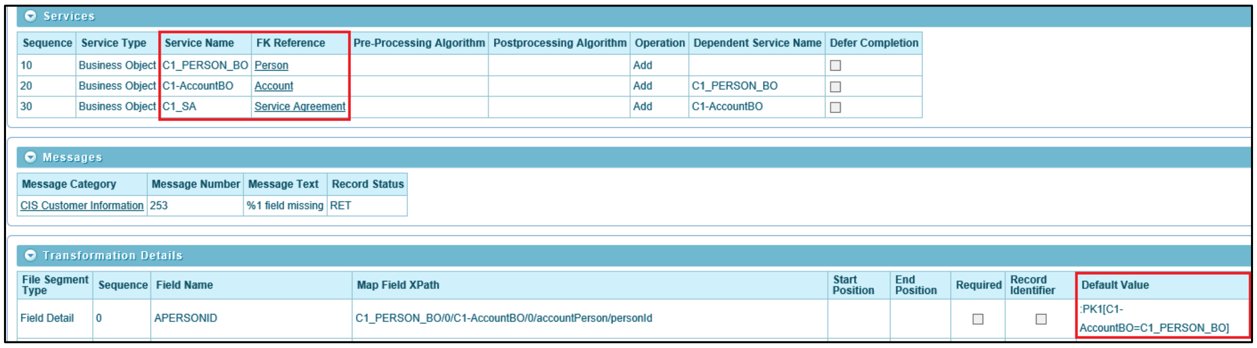
Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Record Identifier	Default Value
Field Detail	0	DIV	C1_PERSON_BO/division			☐	CA
Field Detail	1	PERSONID	C1_PERSON_BO/personId	1	10	☐	
Field Detail	2	PERSONORBUSINESS	C1_PERSON_BO/personOrBusiness	11	12	☐	
Field Detail	3	LIFESUPPORTSENSITIVELOAD	C1_PERSON_BO/lifeSupportSensitiveLoad	13	14	☐	
Field Detail	4	EMAILADDRESS	C1_PERSON_BO/emailAddress	15	35	☐	
Field Detail	5	LANGUAGE	C1_PERSON_BO/language	36	38	☐	
Field Detail	6	DIV	C1_PERSON_BO/division	39	40	✓	
Field Detail	7	ACCESSGRP	C1_PERSON_BO/accessGroup	41	43	✓	
Field Detail	8	PERSONID5	C1_PERSON_BO/0/personName/personid	44	53	☐	
Field Detail	9	ENTITYNAME	C1_PERSON_BO/0/personName/entityName	54	74	✓	
Field Detail	10	NAMETYPE	C1_PERSON_BO/0/personName/nameType	75	78	☐	
Field Detail	11	ISPRIMNAME	C1_PERSON_BO/0/personName/isPrimaryN	79	82	☐	

Figure 45: Map Field Xpath

8.6 Link Parent Service Output with Child Service Input

1. File Upload Interface provides you the flexibility to link parent service output (Primary) key values to child service input field values while transforming data.
2. The supported mapping format is ':PK1/2/3/4/5[CHILD_SERVICE_NAME=PARENT_SERVICE_NAME]'
3. For example, there are three business objects which form a hierarchy:
   - Person
   - Account
   - Service Agreement
4. To map 'Per_Id' within 'Account' business object with primary key value of 'Person' business object (Per_Id), enter the value :PK1[C1-AccountBO=C1_PERSON_BO] in **Default Value** field corresponding to Person ID field.



Services

Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
10	Business Object	C1_PERSON_BO	Person			Add		☐
20	Business Object	C1-AccountBO	Account			Add	C1_PERSON_BO	☐
30	Business Object	C1_SA	Service Agreement			Add	C1-AccountBO	☐

Messages

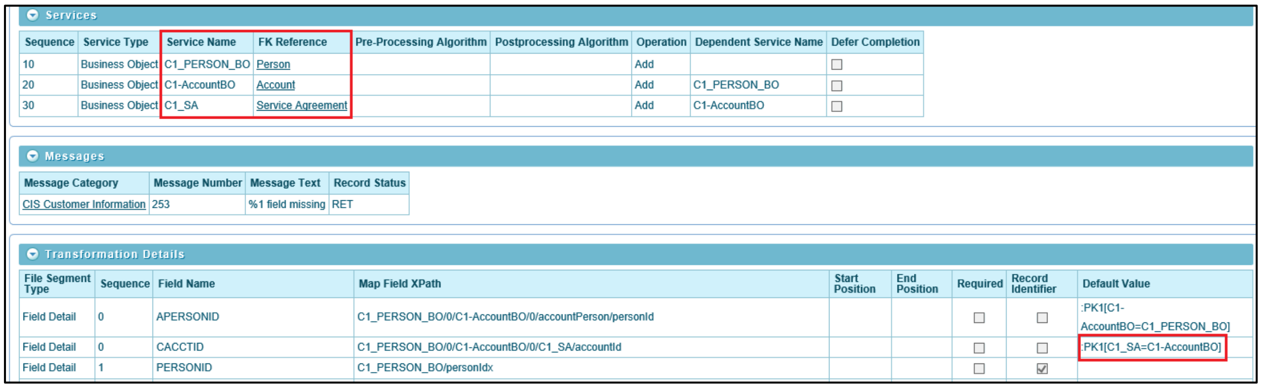
Message Category	Message Number	Message Text	Record Status
CIS Customer Information	253	%1 field missing	RET

Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Required	Record Identifier	Default Value
Field Detail	0	APERSONID	C1_PERSON_BO/0/C1-AccountBO/0/accountPerson/personId			☐	☐	:PK1[C1-AccountBO=C1_PERSON_BO]

Figure 46: Mapping Primary Key Value of 'Person' within 'Account' Business Object

5. To map 'C1_SA' within 'Service Agreement' business object with primary key value of 'Account' business object, enter the value :PK1[C1_SA=C1-AccountBO] in **Default Value** field corresponding to Account ID field.



Services

Sequence	Service Type	Service Name	FK Reference	Pre-Processing Algorithm	Postprocessing Algorithm	Operation	Dependent Service Name	Defer Completion
10	Business Object	C1_PERSON_BO	Person			Add		☐
20	Business Object	C1-AccountBO	Account			Add	C1_PERSON_BO	☐
30	Business Object	C1_SA	Service Agreement			Add	C1-AccountBO	☐

Messages

Message Category	Message Number	Message Text	Record Status
CIS Customer Information	253	%1 field missing	RET

Transformation Details

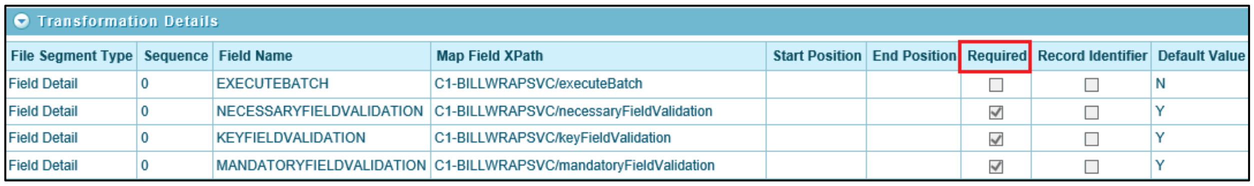
File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Required	Record Identifier	Default Value
Field Detail	0	APERSONID	C1_PERSON_BO/0/C1-AccountBO/0/accountPerson/personId			☐	☐	:PK1[C1-AccountBO=C1_PERSON_BO]
Field Detail	0	CACCTID	C1_PERSON_BO/0/C1-AccountBO/0/C1_SA/accountId			☐	☐	:PK1[C1_SA=C1-AccountBO]
Field Detail	1	PERSONID	C1_PERSON_BO/personIdx			☐	☑	

Figure 47: Mapping Primary Key Value of 'Service Agreement' within 'Account' Business Object

6. Linking parent service output with child service input helps to avoid use of pre-processing algorithm.

8.7 Validating Input Values

1. You can perform mandatory field level validations for every record while uploading data using File Transform and Upload (C1-FTRAN) Batch.
2. To perform validations, select **Required** check box corresponding to respective **File Segment Type** in **Transformation Details** section.



Transformation Details

File Segment Type	Sequence	Field Name	Map Field XPath	Start Position	End Position	Required	Record Identifier	Default Value
Field Detail	0	EXECUTEBATCH	C1-BILLWRAPSVC/executeBatch			☐	☐	N
Field Detail	0	NECESSARYFIELDVALIDATION	C1-BILLWRAPSVC/necessaryFieldValidation			☑	☐	Y
Field Detail	0	KEYFIELDVALIDATION	C1-BILLWRAPSVC/keyFieldValidation			☑	☐	Y
Field Detail	0	MANDATORYFIELDVALIDATION	C1-BILLWRAPSVC/mandatoryFieldValidation			☑	☐	Y

Figure 48: Validating Input Values