**Inbound batch functional document for public pensions**

# **Introduction**

## **Purpose of the document**

Public pensions are responsible for ensuring the long-term financial sustainability of pension plans. This involves conducting actuarial valuations, assessing the adequacy of funding levels, and making adjustments to contributions, benefits, or investment strategies as needed.

## **Overview of Inbound Batch Process**

The inbound batch process involves the reception, validation, and processing of data batches received from external sources. Here's an overview of the typical steps involved:

* Data Reception
* Data Validation
* Error Handling
* Data Processing

# **Process Overview**

## **Explanation of Inbound Data Flow**

Pension data can be received from external sources through various channels and formats, depending on the specific arrangements and systems in place. Pension data is transmitted via File Transfer Protocol (FTP) or Secure File Transfer Protocol (SFTP). These protocols enable the secure transfer of files over the internet or private networks, allowing pension providers, employers, and other stakeholders to send and receive data batches efficiently.

## **Sequence of Processing Steps**

* Data Reception - Receive the batch of pension data from the external source through the designated channel via File Transfer Protocol (FTP) or Secure File Transfer Protocol (SFTP).
* Data Validation - Validate the format of the data batch to ensure it conforms to the specified file format (e.g., TXT) and structure. Perform checks to verify the accuracy, consistency, and completeness of the data, including checks for duplicate records, missing values, and data anomalies. Validate the data batch against predefined business rules to ensure compliance with regulatory requirements, plan policies, and data quality standards.
* Error Handling - Identify any validation errors, data discrepancies, or exceptions encountered during processing. Log detailed information about each error or exception, including the nature of the issue, affected data records, and processing context. Generate notifications to alert stakeholders (e.g., system administrators, data analysts) about validation errors or data anomalies requiring attention.
* Data Processing - Insert the processed data batch into the appropriate databases or data repositories for storage and further analysis. Calculate any derived fields or indicators based on the information provided in the data batch, such as age at retirement, pension entitlements, or contribution amounts.

# **Data Requirements**

Data Formats Accepted: TXT

| Data Field Name | Mandatory / Optional | Size | Data Type | Description |
| --- | --- | --- | --- | --- |
| Personal Information Group | M |  |  |  |
| Participant's Name | M | 25 | String | The full name of the individual participating in the pension scheme |
| Participant's Identification Number | M | 13 | String | A unique identifier assigned to the participant |
| Date of Birth | M | 8 | Date | The participant's date of birth for age verification and eligibility determination |
| Gender | M | 1 | Varchar | The participant's gender, which may be required for actuarial calculations and demographic analysis |
| Employment Information Group | M |  |  |  |
| Employer Name | M | 25 | String | The name of the employer or organization sponsoring the pension plan |
| Employment Start Date | M | 8 | Date | The date when the participant began employment with the employer |
| Employment End Date | O | 8 | Date | The date when the participant ceased employment with the employer, if applicable |
| Pension Plan Details Group | M |  |  |  |
| Plan Identifier | M | 20 | String | A unique identifier for the pension plan or scheme in which the participant is enrolled |
| Plan Enrollment Date | M | 8 | Date | The date when the participant enrolled in the pension plan |
| Contribution Amount | M | 15 | String | The amount contributed to the pension plan by the participant and/or employer |
| Beneficiary Information Group | M |  |  |  |
| Beneficiary Name | M | 20 | String | The full name of the designated beneficiary who will receive pension benefits in the event of the participant's death |
| Relationship to Participant | M | 20 | String | The relationship between the participant and the designated beneficiary (e.g., spouse, child) |
| Financial Information Group | M |  |  |  |
| Pension Account Balance | M | 15 | String | The current balance of the participant's pension account, if applicable |
| Pension Benefit Amount | M | 15 | String | The amount of pension benefits accrued or payable to the participant, calculated based on the pension plan's rules and formulae |
| Transaction Details Group | M |  |  |  |
| Transaction Date | M | 8 | Date | The date of each transaction or event affecting the participant's pension account (e.g., contribution, withdrawal, investment change) |
| Transaction Type | M | 15 | String | The type of transaction or event (e.g., contribution, distribution, loan) |
| Contact Information Group | O |  |  |  |
| Participant's Address | O | 15 | String | The current mailing address of the participant for correspondence and communication |
| Participant's Contact Details | O | 15 | String | Contact information such as phone number or email address for reaching the participant |

# **Batch Processing**

* Format Validation: Check the format of the data batch to ensure it adheres to the specified file format requirements as per above table. Verify that the file structure, field delimiters, and data encoding are consistent and compatible with the processing system
* Data Integrity Checks: Identify and flag data anomalies, such as duplicate records, missing values, invalid data types, or out-of-range values. Apply referential integrity checks to ensure consistency between related data elements (e.g., participant IDs, employer IDs).
* Value Validation: Validate the values of specific data fields against predefined lists of acceptable values or ranges. Validate each individual record within the batch to ensure its integrity and accuracy. Compare record-level data against predefined criteria, such as participant identifiers, transaction dates, or benefit amounts. Reject records that fail validation checks or flag them for further review and manual intervention.

# **Processing Logic**

* Age Requirement: Determine the minimum and/or maximum age at which participants become eligible to participate in the pension plan should be 22. Reject the file if age is below 22.
* Service Requirement: The minimum length of service or employment period required for eligibility, should be 15 years.
* Matching Employer Contributions: Calculate the length of service or employment period from Employment Start Date and Employment End Date, and if the service is more than 25 years, double the Contribution Amount from Employer
* Service Credits: Calculate the length of service or employment period from Employment Start Date and Employment End Date to determine pension benefits accrual.
* Defined Benefit Formula: Calculate pension benefits based on a predefined formula, considering factors such as years of service, salary history, and age at retirement.
* Defined Contribution Account Balances: Calculate the account balances of participants in defined contribution plans based on contributions, investment returns, and any withdrawals or distributions.

# **Error Handling and Incident Management**

* Error Handling:
  + Log detailed information about validation errors, discrepancies, or data anomalies encountered during batch processing.
  + Generate error reports or notifications to alert stakeholders about validation failures and provide guidance on resolution steps.
* Incident Management:
  + Upon receiving an incident report, triage and categorize it based on severity, impact, and urgency. Common categories may include:
    - Critical incidents: Data processing failures affecting a large number of participants or posing significant financial or legal risks.
    - Major incidents: Data discrepancies or processing errors impacting financial reporting, compliance, or participant benefits.
    - Minor incidents: Data quality issues or processing delays with limited immediate impact on operations or stakeholders.