**Legacy Bridge Replacement**

**Low Level Architecture**

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# Introduction

## Purpose of the document

This document contains the low-level architecture for the implementation of a replacement bridge between the HRMS and the AS/400.

## Intended Audience

The audience for this document is everyone in Enterprise Holdings Inc. who manages, is responsible for, develops, or uses the existing PeopleSoft legacy bridge; including any third parties engaged to work on behalf of Enterprise whose remit includes management and/or associated services relating to the legacy bridge.

# Project Overview

The intention of this project is to provide infrastructure and services to decouple the current HRMS (PeopleSoft) and the legacy HR system (AS/400).

## Scope

### In Scope

The following items are in scope for this document:

* Low-level system architecture for moving the legacy bridge off the current HRMS system and into a new Java Spring Boot application.
* Low-level integration requirements suitable for business and development partners to allow initial low-level estimates to be produced.

### Out of Scope

The following sections in the requirements document have not been reviewed:

* Any changes to PeopleSoft not related to the legacy bridge move.
* Any changes to the AS/400 platform.

## Related documents

[LHRS High Level Architecture](https://confluence.ehi.com/display/ES/LHRS+High+Level+Architecture)

Legacy Bridge High Level Architecture

## Assumptions

The following assumptions are being made:

1. The existing system will continue to support employee, non-employee contingent, and multiple ID synchronization between the current HRMS and the AS/400 system.
2. For the duration of the remaining life of the AS/400 system it will receive updates from the new legacy bridge application.

## Dependencies

The following dependencies have been identified:

* + PS Oracle database
  + PeopleSoft Application
  + AS400
  + EID Generator

## Constraints

Development lifecycles for other systems – e.g. HR replacement project, AS400 migration, TempMast.



# Legacy Bridge Proposed State Overview

The system is comprised of five components: Event Monitor; Data Importer; Data Processor; Data Exporter; Event Updater.

The Event Monitor will periodically query the trigger tables looking for new event records and will push new events to the Event Queue.

The Data Importer will pop events from the Event Queue and retrieve the data from the PeopleSoft DB.

The Data Processor converts the incoming data from an HRMS system into the internal data model of domain objects and pushes Event Person objects to the Event Person Queue.

The Data Exporter updates the data stores using ether SQL commands (for the ERD) or REXEC commands (for the AS/400).

The Event Updater updates the status on the trigger table record associated with an event. It will also make an entry in an Event Log. In the case of an error that prevents an event from being, the Event Updater will send an email message detailing the error.

## Legacy Bridge Logical System overview

Below is the proposed system logical overview



Figure 1: Logical overview of the Legacy Bridge

### Low Level Logical Highlights

The system is comprised of five components.

* Event Monitor
* Data Importer
* Data Processor
* Data Exporter
* Event Updater

#### Event Monitor

The Event Monitor will periodically query the trigger tables looking for new event records and will push new events to the Event Queue.

Event Monitor Types:

* + AS400 Employee
  + AS400 TempMast
  + ERD

Trigger Sources:

* + AS400 Employee - PS\_ZHRT\_INTTRIGGER
  + AS400 TempMast - ZHRT\_ALTTRIGGER
  + ERD - ERD Trigger Table

#### Data Importer

The Data Importer will pop events from the Event Queue and retrieve the data from the PeopleSoft DB.

Data Importer Types:

* + Hire
  + Termination
  + Job Profile Changes
  + Demographics Changes
  + Rehire
  + Dates
  + Group Transfers

#### Data Processor

The Data Processor converts the incoming data from an HRMS system into the internal data model of domain objects (see section 4 Domain Objects) and pushes Event Person objects to the Event Person Queue.

#### Data Exporter

The Data Exporter updates the data stores using ether SQL commands (for the ERD) or REXEC commands (for the AS/400).

The ERD exporters will be using SQL connections to ERD via JPA.

* ERD SQL-Based Exporter Process Types:
  + Insert
    - Hire
    - Rehire
  + Update
    - Termination
    - Job Profile Change
    - Demographic Change
    - Date Changes
    - Location Transfer
  + Delete
    - Support Cascade Delete

The AS/400 exporters will be using REXEC connections to the AS/400 and call the appropriate methods for the event metadata and event source.

* AS/400 Employee Process Types:
  + HRI101A – New Hire/Rehire
  + HRI102A – Termination
  + HRI104A – Job Profile Change
  + HRI105A – Demographic Change
  + HRI106A – Rehire
  + HRI107A – Date Change
  + HRI109A – Group Transfer
  + HRI101D – A row deleted in Hire Process
  + HRI102D – A row deleted in Term Process
  + HRI104D – A row deleted in Job Profile
  + HRI105D – A row deleted in Demographics
  + HRI106D – A row deleted in Rehire
  + HRI107D – A row deleted in Employment Review, Accomplishment, Contract Data changes
  + HRI109D – A row deleted in Group Transfers
* AS/400 TempMast (Contingent Employee and Multiple EID) Process Types:
  + HRI201A – New Hire/Rehire
  + HRI202A – Terminate
  + HRI205A – Demographic Change

#### Event Updater

The Event Updater updates the status on the trigger table record associated with an event. It will also make an entry in an Event Log. In the case of an error that prevents an event from being, the Event Updater will send an email message detailing the error.

Event Trigger Status Types (task flag values):

* P - new
* C - complete, sent to legacy
* E - error
* Z - dummy row value

Error Types:

* Unknown Event
* Import Error
* Export Error
* EID Error

## Legacy Bridge Workflows

### Legacy Bridge Workflow Overview



Figure 2: Legacy Bridge work flow

### Event Monitor



Figure : Event Monitor work flow

### Data Importer



Figure : Data Importer work flow

## Data Exporter



Figure : Data Exporter work flow

## Event Updater Data Flow



Figure 8: Event Updater data flow

# Domain Objects

## Event Object

### Event Object Properties

Event Object Properties (incomplete):

* Trigger Source
* Trigger Status
* Monitor Type
* Event Type
* Process Type
* Error Type
* Hire Rehire Flag

## Person Object

### Person Object Properties

Person Object Properties (incomplete):

* PS\_JOB
  + HR01-Build-Call-Statement
  + LEG SRV YEAR/MON/DAY (EFFDT)
  + LEG UNION FLAG (EMPL\_CLASS)
  + LEG TIMECARD FLAG (FLSA\_STATUS)
  + LEG NID (““)
* PS\_NAMES
  + LEG LAST NAME (LAST\_NAME)
  + LEG FIRST NAME (FIRST\_NAME)
  + LEG MIDDLE INITIAL (MIDDLE\_NAME)
  + LEG NICKNAME (FIRST\_NAME)
  + NAME PREFIX (NAME\_PREFIX)
* PS\_PERS\_DATA\_EFFDT
  + LEG MARITAL STATUS (MAR\_STATUS)
  + LEG GENDER (SEX)
* PS\_PERSON
  + LEG BIRTH YEAR /MON/DAY (BIRTHDATE)
* PS\_ADDRESSES
  + LEG ADDRESS (ADDRESS1)
  + LEG CITY (CITY)
  + LEG STATE (STATE)
  + LEG ZIP (POSTAL)
* PS\_COUNTRY\_TBL
  + PS NID COUNTRY (COUNTRY\_2CHAR)
* PS\_PERSONAL\_PHONE
  + LEG HOME AREA CODE.PHONE/ERROR (PHONE - HOME)
  + LEG WORK AREA CODE.PHONE/ERROR (PHONE - WORK)
* PS\_ZHRT\_JOBCD\_CREF
  + LEG JOB STATUS (ZHRF\_LEGJOBSTSCD)
  + LEG POSITION (ZHRF\_LEGPOSITIONCD)
  + LEG DEPTID (ZHRF\_LEGDEPTCD)
  + LEG SUB DEPTID (‘03’)
* PS\_ZHRT\_ETHCD\_CREF
  + LEG RACE (ZHRF\_LEGETHNICCD
* PS\_ZHRT\_RFSRC\_CREF
  + LEG REF SRC (ZHRF\_LEGRECRUITSRC)
* PS\_HRS\_SOURCE\_I (HRS\_SOURCE\_DESCR)
  + LEG SPECIFIC REF SRC (HRS\_SOURCE\_DESCR)
* PS\_ZHRT\_CMPNY\_CREF
  + LEG GROUP (ZHRF\_LEGGROUP)
* ZPS\_ZGLT\_PT12P\_CREF (ZGLF\_PT2OBR)
  + LEG BRANCH (ZGLF\_PT2OBR)
* PS\_JOB
  + TERM MONTH
  + TERM DAY
  + TERM YEAR
  + REHIRE MONTH
  + REHIRE DAY
  + REHIRE YEAR
  + AUDIT OPRID
  + TERM REASON
* PS\_JOB.ACTION
* PS\_JOB.ACTION\_REASON
  + PS\_ZHRT\_TRMRS\_CREF
    - VOLUNT/INVOL (ZHRF\_LEGTERMCD)
    - TERM CODE (ZHRF\_LEGTERMRSN)
* PS\_JOB
  + WORK STATUS
  + UNION FLAG
  + TIMECARD FLAG
  + EFFDT
  + LEGACY SUBDEPTID (““)
* PS\_JOB.COMPANY
* PS\_JOB. SETID\_JOBCODE
* PS\_JOB. JOBCODE
* PS\_JOB.EMPL\_CLASS
* PS\_JOB.FULL\_PART\_TIME
* PS\_JOB.REG\_TEMP
* PS\_JOB.DEPTID
* ZPS\_ZGLT\_PT12P\_CREF
  + LEGACY BRANCH (ZGLF\_PT2OBR)
* PS\_ZHRT\_JOBCD\_CREF
  + LEGACY DEPTID (ZHRF\_LEGDEPTCD)
  + LEGACY POSITION (ZHRF\_LEGPOSITIONCD)
  + LEGACY JOBSTATUS (ZHRF\_LEGJOBSTSCD)

### Person Object Properties Methods

* Hire
* Rehire
* Transfer
* Terminate
* Change Job Profile
* Change Demographic
* Change Date
* Delete

# Externally Configurable Parameters

* 1
* 2
* 3
* 4
* 5
* 6

# Appendix A – Business service classifications

## Definitions, Acronyms and Abbreviations

The following abbreviations and acronyms have been used in this document.

Table : Definitions, Acronyms and Abbreviations

|  |  |
| --- | --- |
| **Term** | **Meaning** |
| **PS** | People Soft |
| **ERD** | Employee Reference Data |
| **SQL** | **Structured Query Language**: language used to access data held in a database |
| **TBD** | **To Be Determined** |
| **REST** | **Representational State Transfer**: Interface standard that allows for interchanging data between systems via web services. |
| **JSON** | **JavaScript Object Notation**: a lightweight data-interchange format easily read by humans and processed by computers |
| **ACL** | **Access Control List**: a list that tells a computer system which access rights a user or client has to a particular data object such as allowed access to PII data elements |
| **RESTful** | Interfaces that implement a REST like service |
| **DB** | **Database**: a system used to store large record sets allowing for standard methods to manage CRUD operations. |
| **CRUD** | **Create Retrieve Update Delete**: a basic set of operations done on data sets |
| **ETL** | Method to Extract, Translate, Load data from one system to another |
| EID |  |
| REXEC |  |
| Temp Mast |  |
| Metadata |  |
| Trigger |  |
| Person |  |