## Version History

<table>
<thead>
<tr>
<th>Version #</th>
<th>Date</th>
<th>Revised By</th>
<th>Reason for Change</th>
</tr>
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<tbody>
<tr>
<td>1.0</td>
<td>03/20/2015</td>
<td>Mary Meyer</td>
<td>Initial Draft</td>
</tr>
<tr>
<td>1.2</td>
<td>03/24/2015</td>
<td>Mary Meyer</td>
<td>Replaced UPAY form with better version; added descriptions of changes required for</td>
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<td></td>
<td></td>
<td></td>
<td>PGETTIM, PPKEYCHD and PPP640</td>
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<tr>
<td>1.3</td>
<td>03/26/2015</td>
<td>Mary Meyer</td>
<td>Removed requirement to list host variables when fetch is using a group item; removed</td>
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<td></td>
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<td>program PPKEYCHD as there is an issue with the column order</td>
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<tr>
<td>1.4</td>
<td>04/06/2015</td>
<td>Mary Meyer</td>
<td>Added INC0039842</td>
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1 Introduction

Service Now Ticket - INC0039842
INC0039842 reports that the column REHIRE_SUSP_END is missing from the view PPPVLOF1_LOF.

Service Now Ticket - RITM0047174
RITM0047174 requests that programs containing SQL statements ‘Select *’ be changed to list the column names and host variables and the insert statements using ‘from’ also be changed to list the column names and values.

Service Now Ticket – RITM0048039
RITM0048039 requests that the following changes be made, if not already present, at the same time the changes for RITM0047174 are being made:

1) Move the program name to ‘DB2MSGPGM-ID’ in the Initialization section before any SQL statements are executed.
2) Populate DB2MSG-TAG just before each and every executable SQL request.

Service Now Ticket – RITM0059735
RITM0059735 requests a new program be written to create a file of CTT update transactions that will be processed by PPP004 to add grades that exist in PPPSGT but are not in PPPCTT.

Background

- Service Now Ticker - INC0039842
  Precompiler gives a warning message because there is a column missing from a view. Column RHRE_SUSP_END needs to be renamed to REHIRE_SUSP_END in the INCLUDE member PPPVLOF1.

- Service Now Ticket - RITM0047174
  The DBA has requested that for efficiency and reduced over head, SQL statements containing ‘Select *’ be replaced by statements that list the column and host variable names. DBA provided a list of ‘select * ‘ from DB2P created in Mar 2011:

To get a more current program list, run: SPGRRR.JCL.CNTL(SELASTR). It takes a few hours to run.

Below is a list of programs requiring changes that will be addressed in a future release. However, for any programs where the ‘select *’ is being changed, check for ‘insert’ statements and correct them as well.
An example of an ‘insert’ statement that should be changed can be found in ‘PAY.BASE.COBOL (PPACTUTW):

```cobol
EXEC SQL
    INSERT INTO PPPVACT2_ACT
    VALUES (:ACT-ROW-DATA)
END-EXEC.
```

After typing on command line: `sql ins pb0da.PPPVACT2_ACT`, the tool will replace it with this code:

```
***************************************************************
*-*-*-*-*-* SQL FOR TABLE PPPVACT2_ACT
***************************************************************
EXEC SQL
    INSERT INTO PPPVACT2_ACT
    (EMPLOYEE_ID,APPT_NUM,DIST_NUM,ACTION_CODE,ACTION_EFFDATE)
    VALUES (:DCLPPPVACT2-ACT.EMPLOYEE-ID,:DCLPPPVACT2-ACT.APPT-NUM,:DCLPPPVACT2-ACT.DIST-NUM, . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . =>,:DCLPPPVACT2-ACT.DIST-NUM,:DCLPPPVACT2-ACT.ACTION-CODE,:DCLPPPVACT2-ACT.ACTION-EFFDATE)
END-EXEC
*-*-*-*- END OF SQL INSERTED CODE -*-*-*-*
```

- **Service Now Ticket - RITM0048039**

  RITM0048039 requests changes to improve error handling and facilitate debugging.

  1) Move the program name to ‘DB2MSG-PGM-ID’in the initialization section before any SQL statements are executed.

  2) Populate DB2MSG-TAG just before each and every executable SQL request.
  Do not put a period at the end of the statement.
  Executable SQL statements are:
  - select
  - open cursor
  - close cursor
Technical Release Q2.1 2015
Technical Specification
March 20, 2015

- fetch
- update
- insert
- delete

(Statements for declare, include do not required msg tags).

2 Overview of System Modifications

For INC0039842 rename column RHRE_SUSP_END to REHIRE_SUSP_END in INCLUDE member
PPPVLOF1.

For RITM0047174, changes will be made to the programs listed in Section 6 to replace ‘select *’ statements with
the list of columns and host variable names and to change the insert statements using ‘from’ to list the column names
and values.

For RITM0048039 changes will be made to populate ‘DB2MSG-PGM-ID’in the initialization section before any
SQL statements are executed and to populate DB2MSG-TAG just before each executable SQL request.

For RITM0059735 a new program needs to be written that will create a file of PPPCTT update transactions that will
be processed by PPP004.

Processes Impacted:

- Batch EDB File Maintenance
- CTL Table Updates
- Compute

3 Design Considerations

3.1 Assumptions and Dependencies

- For this release, programs listed in Section 6 were selected. The remaining programs will be changed in future
  Technical Releases. Some programs have been changed by R2160-Technical Release QTR4 2014, R2166 -

- The list of columns needed to replace “*” in a SELECT (or in re-coding an INSERT) must include all of the
columns in the view being used and there will be no attempt made to remove columns that are not referred by the
programs.

- Code walk-thru is required.

- Testing will include executing the SQL statements that were changed for RITM0047174.
5. Testing Considerations

INC0039842
After changing column name in PAY.BASE.INCLUDE(PPPVLOF1) recompile PPP862 and PPLOFUTL

RITM0047174

- **DBA tool**

  DBA provided a tool that looks up all the table’s or view’s column names from the DB2 catalog and inserts them in the cobol program.

  The whole model SQL statement is written. You will need to edit it depending on requirements.

  The advantage is that all the column names are copied in the right order for you.

  **Be sure to use the table or view as specified in the SQL statement.** If it’s a view and you use the table name, the column names may be incorrect.
• **CHECK COMPILe LISTINGS CAREFULLY**

Look at all messages from compile listing if return code is > 0 to ensure that they are not a result of changes you made.

Conditions that will cause return code 4 or 8:

- **“Deleted Columns”**

Some views still contain column names that are no longer used. For example, in PAY.BASE.INCLUDE(PPPZD6EP), DEP-INS-DEENROLL has been commented out and replaced by filler in the COBOL declaration:

```
*****10 DEP-INS-DEENROLL     PIC X(01).
10 DEP-FILLER                    PIC X(01).
```

However, since it still exists in the DB2 view (PB0DA.PPPZD6EP_DEP), the tool will insert it as a column name.

This will become evident when you do a compile. You will get a warning that the column does not exist. You will then need to delete it from the list of names generated by the tool. To date, PPPZD6EP_DEP and PPPZBEN_BEN (and other views associated with PPPDEP and PPPBEN) have been identified as containing “deleted” columns, but there could be others.

- **Ambiguous References**

There could be multiple ‘select *’ statements that have the same column name from different tables or views. This is not an issue for ‘select *’, but it will be a problem when all the host variable names are listed. The compiler will give an error that the referenced field name is ambiguous.

**RITM0059735**

A new program, PPP766, needs to be written to create a file of PPPCTT update transactions that will be processed by PPP004. Up to nine CTT update transactions need to be created for every new grade that is in the PPPSGT table but NOT in the PPPCTT table.

Create a transaction record for each of the following EDB data elements if identified as missing from PPPCTT: EDB2008, EDB2308, EDB2608, EDB2908, EDB3208, EDB3508, EDB3808, EDB4108, EDB4408.

The sample SQL below can be used to identify which PPPCTT rows are missing for EDB element 2008.

```sql
SELECT DISTINCT
   SGT_GRADE
FROM PPVZSGT_SGT
WHERE SGT.SGT_GRADE NOT IN
   (SELECT CTT_CODE_VALUE
    FROM PPVZCTT_CTT
    WHERE CTT_DATABASE_ID = 'EDB'
    AND CTT_DATA_ELEM_NO = '2008');
```
Declare a cursor for each of the EDB data element queries (or use one cursor and a host variable that is populated with each EDBN data element) then open, fetch and process each returned row.

For each row found, write a transaction record to an output file. The format of the record can be found in UPAY814. Below is a sample of UPAY814 with data filled in for grade ‘HE’. In this sample, ‘HE’ needs to be added for all the EDB data elements.

In Working Storage, hard code these values for the transaction output record:

```plaintext
01 CTT-TRANS-REC
  05 CTT-FUNCTION   PIC X(01) VALUE 'A'.
  05 CTT-FUNCTION   PIC X(02) VALUE '38'.
  05 FILLER                     PIC X(02) VALUE SPACES.
  05 CTT-DATABASE     PIC X(03) VALUE 'EDB'.
  05 CTT-DATA-ELEMENT  PIC X(06) VALUE SPACES.
  05 CTT-CODE-VALUE   PIC X(06) VALUE SPACES.
  05 CTT-DATA-LENGTH  PIC 9(02) VALUE ZERO.
  05 CTT-CODE-TRANSL  PIC X(02) VALUE ZERO.
  05 FILLER                                PIC X(56) VALUE SPACES.
```

The values of the other fields will be set as follows:

1. **CTT-DATA-ELEMENT** is the value of the EDB data element used in the fetch statement (2008, 2308, etc).
2. **CTT-CODE-VALUE** is the SGT_GRADE returned by the fetch. This will also be the value for CTT-CODE-TRANSL.
3. **CTT-DATA-LENGTH** will depend on the length of the SGT_GRADE field. You will need to add code to determine the length of that field. If it is one character, move 01 to CTT-DATA-LENGTH. If it is 2 characters, move 02.

So if ‘4E’ were returned by the fetch statement for EDB2008, this row will be written to the output file:

```
A38 EDB2008 4E 024E
```
6 Mainframe Design

6.1.1 Cobol Programs
For the programs listed below, make changes to list column names and host variables in place of `select *` or insert statements as described in this document. Populate DB2MSG-TAG and DB2MSG-PGM-ID as required.

PPCTSTAU updates the PPPSTA (State Tax - Basic) control table. One insert statement to be changed.

PPCTSTCU updates the PPPSTC (State Tax -- Credits) control table. One insert statement to be changed.

PPCTSTIU updates the PPPSTI (State Tax -- Itemized Deductions) control table. One insert statement to be changed.

PPCTSTRU updates the PPPSTR (State Tax -- Rates) control table. One insert statement to be changed.

PPCTTCIU updates the PPPTCI (Title Code -- Basic) control table. One insert statement to be changed.

PPCTTPAU updates the PPPTPA (Title Code -- Basic Academic) control table. One insert statement to be changed.

PPCTTPBU updates the PPPTPB (Title Code -- Academic Rate Set) control table. One insert statement to be changed.
PPFCBUTL retrieves the PPPFCB data for an employee into an array. One Select statement to be changed.

PPFNAUTL retrieves the PPPFNA data for an employee into an array compute. One Select statement to be changed.

PPFNAUTW is part of the EDB fetch complex that processes updates to PPPFNA rows. One insert statement to be changed.

PPFNWUTL retrieves the PPPFNW data for an employee into an array. One Select statement to be changed.

PPFNWUTW is part of the EDB fetch complex that processes updates to PPPFNW rows. One insert statement to be changed.

PPGETTIM retrieves data from the PPPTIM table for online use. PPPTIM contains appointment and distribution data needed for positive (TX) and exception (TE) time reporting for employees who appear on the online time reporting roster. Populate DB2MSG-PGM-ID. One select * in Declare statement to be changed.

PPLAHUTL retrieves the PPPLAH data for an employee into an array. One select statement to be changed.

PPLAPUTL retrieves the PPPLAP data for an employee into an array. One select statement to be changed.

PPLCNUTW is part of the EDB fetch complex that processes updates to PPPLCN rows. One insert statement to be changed.

PPP640 produces various leave liability reports from a combination of monthly PAR and current EDB data. Five insert statements to change. Populate DB2MSG-TAG before statements DELETE FROM PPPVZLVL_LVL, DELETE FROM PPPVZLLI_LLI in 2 places.

PPP766 (new). Write a file of PPPCTT update transactions to be processed by PPP004.

6.1.2 Include members
PPPVLOF1 is the record layout for PPPVLOF1_LOF, a view of the PPPLOF table. Column RHRE_SUSP_END needs to be renamed to REHIRE_SUSP_END.

7 Unit Testing Requirements

INC0039842
After changing PAY.BASE.INCLUDE(PPPVLOF1) recompile PPP862 and PPLOFUTL.

• Use CICS Function ELOF to test PPLOFUTL
• Run the process to produce the Layoff Status Report to test PPP862.

RITM0047174
For each of these programs, use debugger, display or some other method to verify that each of the changed statements is executed. You may have to set up test data to meet certain conditions in order to achieve that.

• Run Batch EDB File Maintenance to test PPLCNUTW or use CICS function ELIC
• Run Compute to test:
• Run JCL member **RUN640** to test **PPP640**

• Use **CICS Function IDTC** to test **PPGETTIM**

• Run **PPP004** using **TESTONLY** from **CARDLIB**. This will execute the following programs:

  PPCTSTAU  
  PPCTSTCU  
  PPCTSTIU  
  PPCTSTRU  
  PPCTTCIU  
  PPCTTPAU  
  PPCTTPBU

  **PPP004** should get good return code.

**RITM0059735**

• To test **PPP766** – Run **PPP766** and use the output file as input to **PPP004**. Review the output and report from **PPP004**.