

Release 1458

**Service Request 80286
SHPS File**

Detail Design

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Introduction

The University has contracted with an outside vendor SHPS to administer its two flexible spending accounts, DepCare (DCRA) and Health Care Reimbursement Account (HCRA). Release 1440 (SR 80238) and SR 80251) created the mechanism to collect and monitor the contributions. Service Request 80286 requested the development of a PPS process to create and transmit enrollment data to SHPS.

A new table PPPSHP will be created which will mirror the existing PAR PPPPIR table. A single PPPPIR row exists for each pay cycle PAR file that is loaded into the DB2 PAR. The PPPSHP table will contain all the PPPPIR data. In addition, it will contain a column which will indicate if the pay cycle has been processed by the SHPS file creation program.

The main DB2 PAR load driver PPP465 will be modified to insert a PPPSHP row each time it inserts a PPPPIR row. It will set the SHPS File Indicator to 'N'. A new program PPP466 will be created which will process all PAR data for pay cycles with an 'N' indicator, and create a file for transmission to SHPS. PPP466 will change the indicator to 'Y'.

The PPPSHP table will **not** be linked to the PPPPIR table via foreign key, i.e. if the PPPPIR table is deleted and reloaded via PPP465, the PPPSHP table will be unaffected. However, if a PAR file is reprocessed for a pay cycle which already exists on the PPPSHP table with an indicator of 'Y' a warning message will be issued by PPP465. This situation might require intervention on the PPPSHP table to modify the indicator so that a SHPS file can be recreated from corrected PAR data. This release does **not** provide an update tool for the PPPSHP table.

DDL Members for DB2 Changes

SHPS File Indicator Table (PPPSHP):

A new table will be added to the PPPPAR database that will contain data for all Pay Cycles defined on the PAR PPPPIR table. In addition it will have a column indicating whether or not the pay cycle has been processed by new SHPF File program PPP466.

The standard DDL members defining the tablespace, table, index and view for the PPPSHP table will be created.

- TSSHPO0C
- TBSHP00C
- IXSHP00C
- PPPVZSHP

```
CREATE TABLE PPPSHP
  (SHP_CYCLE_END_DATE DATE NOT NULL,
   SHP_CYCLE_CODE     CHAR(2) NOT NULL,
   SHP_CYCLE_CHK_DATE DATE NOT NULL,
   SHP_CYCLE_BEG_DATE DATE NOT NULL,
   SHP_FILE_INDICATOR CHAR(1) NOT NULL WITH DEFAULT
  PRIMARY KEY (SHP_CYCLE_END_DATE,
               SHP_CYCLE_CODE))
IN PPPPAR.PPPSHP ;
```

Includes

PPPVZSHP (new):

The standard Include member defining the working storage and View for a table row in the PPPSHP table will be created.

```
*01  PPPVZSHP_SHP .
      10 SHP-CYCLE-END-DATE  PIC X(10) .
      10 SHP-CYCLE-CODE      PIC X(2)  .
      10 SHP-CYCLE-CHK-DATE  PIC X(10) .
      10 SHP-CYCLE-BEG-DATE  PIC X(10) .
      10 SHP-FILE-INDICATOR  PIC X(1)  .
*****
* THE NUMBER OF COLUMNS DESCRIBED BY THIS DECLARATION IS 5 *
*****
EXEC SQL DECLARE PPPVZSHP_SHP TABLE
( SHP_CYCLE_END_DATE          DATE NOT NULL,
  SHP_CYCLE_CODE              CHAR(2) NOT NULL,
  SHP_CYCLE_CHK_DATE          DATE NOT NULL,
  SHP_CYCLE_BEG_DATE          DATE NOT NULL,
  SHP_FILE_INDICATOR          CHAR(1) NOT NULL
)END-EXEC.
```

Programs

PPP465

PPP465 is the main driver for the DB2 PAR load process. It will be modified to process the new SHPS File Indicator Table (PPPSHP) whenever a new PPPPIR row is inserted.

After each PPPPIR insert an attempt will be made to select a PPPSHP row with the same Pay Cycle End Date and Pay Cycle Code. These will be the key fields for both the PPPPIR and PPPSHP tables. If a row is not found (the normal condition), the PPPPIR data will be moved to the PPPSHP row. The SHPS File Indicator will be set to 'N' indicating that PPP466 has not yet processed the pay cycle. The PPPSHP row will be inserted.

If a PPPSHP row is found, and its SHPS File Indicator is 'N', i.e. it still has not been processed by PPP466, nothing will be done. The newly inserted PAR data will be included in the next run of PPP466.

If a PPPSHP row is found, and its SHPS File Indicator is 'Y', i.e. it already has been processed by PPP466, new warning message 46-506 will be issued. This indicates a possible problem which should be researched. The newly inserted data will **not** be processed by PPP466. If it should be, e.g. a new SHPS file needs to be created due to previously bad Compute data, then the SHPS File Indicator will need to be modified using local DB2 update tools before PPP466 is run.

PPP466 (new)

A new program PPP466 will be created to create the SHPS file. The file will contain a Header record, multiple employee records, and a Trailer Record. An employee record will be created for each employee who is either enrolled on the EDB for DepCare or HCRA, or who had PAR activity for either DepCare or HCRA. See SR 80286 for the record layouts and default values.

The SHPS file will be opened and the file header record will be written.

A main cursor will be defined as a UNION of Employee ID's that have an EDB PPPDBL entry for GTN 335 or 338, or have a PAR PPPDRC entry for GTN 335 or 338 for a pay cycle that has not yet been processed, per the SHPS File Indicator in the new PPPSHP table.

```
EXEC SQL
  DECLARE EMPS_ROW CURSOR FOR
    SELECT EMPLOYEE_ID
      FROM PPPVZDBL_DBL
      WHERE GTN_NUMBER IN ('335', '338')

  UNION

  SELECT EMPLOYEE_ID
    FROM PPPVZDRC_DRC, PPPVZSHP_SHP
    WHERE GTN_NUMBER IN ('335', '338')
      AND RECORD_TYPE ^= '65'
      AND PPPVZDRC_DRC.PAY_CYCLE_END_DATE =
        PPPVZSHP_SHP.SHP_CYCLE_END_DATE
      AND PPPVZDRC_DRC.PAY_CYCLE_CODE =
        PPPVZSHP_SHP.SHP_CYCLE_CODE
      AND PPPVZSHP_SHP.SHP_FILE_INDICATOR = 'N'

  ORDER BY EMPLOYEE_ID
END-EXEC.
```

The Employee ID's returned by the cursor are then processed and employee records written

The EDB PPPPER table will be accessed for Birth Date, First Name, Middle Name and Last Name.

The EDB PPPPAY table will be accessed for Address Line 1, Address Line 2, City, State, Zip code, Foreign Address Indicator and Social Security Number.

The EDB PPPBEN table will be accessed for HCRA Termination Date.

The EDB PPPPCM table will be accessed for Primary Pay Schedule.

The EDB PPPDBL table will be accessed for the DepCare and HCRA Annual Amounts (GTN 335 U-Balance and GTN 338 U-Balance), if any. Note: DepCare enrollments done via CICS will have a zero annual amount.

The EDB PPPBRS table will be accessed for the DepCare and HCRA Effective Dates, if any.

The PCD PPPCTL table will be accessed for Campus Location Code.

Next the PPPDRC rows for unprocessed pay cycles will be processed to accumulate DepCare and HCRA activity. GTN amounts will be accumulated if the Deduction Source is blank, 'D' (from a previous suspended balance), 'R' (suspended as a receivable) or 'P' but not Transaction Type 'R' (prepayment, but not a refund). Suspended amounts will not be accumulated.

The selected and accumulated data will be moved to the employee record. Dates will be converted to CCYYMMDD format. The Branch Code will be coded from three leading zeroes and the CCR Location Code. For foreign addresses 'XX' will be placed in the state field and the zip code will be zeroes. See SR 80286 for the employee record layout and default values.

The employee's annual and activity totals for DepCare and HCRA will be added to totals for the trailer record.

The next Employee ID will be fetched and processed. This will continue to the end of the cursor.

At the end, the trailer record will be written to the SHPS file and the file closed. The trailer annual and activity totals will also be written to the control report.

All the PPPSHP rows with a SHPS File Indicator value 'N' will be updated to 'Y' so they will be bypassed in the next run of PPP466.

PPOTRRRR

A one-time program PPOTRRRR will be created to create initial rows on the new PPPSHP table which will control SHPS file data selection in new program PPP466.

A PPPSHP row will be defined by new INCLUDE PPPVZSHP.

A cursor will be defined to select PPPPIR rows from the DB2 PAR.

```
EXEC SQL
  DECLARE PIR_CURSOR CURSOR FOR
  SELECT
    CHAR(PAY_CYCLE_END_DATE, ISO)
    , PAY_CYCLE_CODE
    , CHAR(PAY_CYCLE_CHK_DATE, ISO)
```

```
        , CHAR ( PAY_CYCLE_BEG_DATE , ISO )  
FROM   PPPVZPIR_PIR  
ORDER BY PAY_CYCLE_END_DATE  
        , PAY_CYCLE_CODE  
END-EXEC .
```

The cursor will be opened and all PPPPIR rows fetched. If the first fetch does not return a row, a FATAL message will be issued and the job will stop.

For each returned PPPPIR row, the PPPPIR data will be moved to a new PPPSHP row.

```
MOVE PAY-CYCLE-END-DATE OF PIR-ROW TO  
    SHP-CYCLE-END-DATE OF SHP-ROW .  
MOVE PAY-CYCLE-CODE OF PIR-ROW TO  
    SHP-CYCLE-CODE OF SHP-ROW .  
MOVE PAY-CYCLE-CHK-DATE OF PIR-ROW TO  
    SHP-CYCLE-CHK-DATE OF SHP-ROW .  
MOVE PAY-CYCLE-BEG-DATE OF PIR-ROW TO  
    SHP-CYCLE-BEG-DATE OF SHP-ROW .
```

WS_SHPS-FIRST-DATE will be defined as '2003-01-01'. If the Pay Cycle Check Date is prior to that date a 'Y' will be moved to the SHPS File Indicator. A 'Y' indicates that the PPPPIR has been processed for SHPS file purposes. This initial 'Y' will remove those pay cycles from SHPS processing by the new SHPS File program PPP466. If the Pay Cycle Check Date is in 2003, an 'N' will be moved to the SHPS File Indicator. This will mark the pay cycle for future processing by the new SHPS File program PPP466.

```
IF PAY-CYCLE-CHK-DATE < WS-SHPS-FIRST-DATE  
    MOVE 'Y' TO SHP-FILE-INDICATOR  
ELSE  
    MOVE 'N' TO SHP-FILE-INDICATOR  
END-IF .
```

The PPPSHP row will then be inserted and counted. The next PPPPIR row will be fetched, and processing continued until the last PPPPIR row.

A simple audit report with a count of PPPSHP inserts will be printed at end-of-job. At the successful end of job there should be as many PPPSHP rows as there are PPPPIR rows. All PPPSHP rows with Pay Cycle Check Dates prior to 2003 should have a 'Y' in the SHPS File Indicator. All PPPSHP rows with Pay Cycle Check Dates in 2003 should have an 'N' in the SHPS File Indicator.

Copymembers

CPWSSHPS(new):

A copymember will be created to define the SHPS File header, employee detail and trailer records. Some standard values for the file will be initialized.

```
*01  SHPS-HEADER-RECORD.
      05  SHPS-HEADER-ID                PIC X(11)  VALUE ZEROES.
      05  SHPS-HEADER-CONTROL-NO        PIC X(05)  VALUE '97001'.
      05  SHPS-HEADER-FROM-DATE          PIC X(08).
      05  SHPS-HEADER-TO-DATE            PIC X(08).
      05  SHPS-HEADER-PAY-INDICATOR      PIC X(02)  VALUE 'DP'.
      05  SHPS-HEADER-EFT-INDICATOR      PIC X(01)  VALUE 'N'.
      05  FILLER                          PIC X(765) VALUE SPACES.

*
01  SHPS-EMP-RECORD.
      05  SHPS-EMP-SSN                    PIC X(09).
      05  FILLER                          PIC X(02)  VALUE ZEROES.
      05  SHPS-EMP-CONTROL-NO            PIC X(05)  VALUE '97001'.
      05  SHPS-EMP-LAST-NAME              PIC X(20).
      05  SHPS-EMP-FIRST-NAME             PIC X(14).
      05  SHPS-EMP-MIDDLE-INITIAL         PIC X(01).
      05  SHPS-EMP-BRANCH-CODE.
          10  FILLER                      PIC X(03)  VALUE ZEROES.
          10  SHPS-EMP-LOCATION              PIC X(02).
      05  FILLER                          PIC X(20)  VALUE SPACES.
      05  SHPS-EMP-ADDRESS-LINE-1         PIC X(35).
      05  SHPS-EMP-ADDRESS-LINE-2         PIC X(35).
      05  SHPS-EMP-ADDRESS-CITY           PIC X(22).
      05  SHPS-EMP-ADDRESS-STATE          PIC X(02).
      05  SHPS-EMP-ADDRESS-ZIP-CODE       PIC X(09).
      05  SHPS-EMP-FROM-DATE              PIC X(08).
      05  SHPS-EMP-TO-DATE                 PIC X(08).
      05  FILLER                          PIC X(32)  VALUE SPACES.
      05  SHPS-EMP-HCRA-EFF-DATE           PIC X(08).
      05  SHPS-EMP-HCRA-TERM-DATE          PIC X(08).
      05  SHPS-EMP-DCRA-EFF-DATE           PIC X(08).
      05  SHPS-EMP-DCRA-TERM-DATE          PIC X(08).
      05  SHPS-EMP-BIRTHDATE              PIC X(08).
      05  FILLER                          PIC X(08)  VALUE ZEROES.
      05  SHPS-EMP-HCRA-AMOUNT             PIC S9(6)V99.
      05  FILLER                          PIC X(08)  VALUE ZEROES.
      05  SHPS-EMP-DCRA-AMOUNT             PIC S9(6)V99.
      05  SHPS-EMP-HCRA-ANNUAL-AMOUNT      PIC S9(6)V99.
      05  SHPS-EMP-DCRA-ANNUAL-AMOUNT      PIC S9(6)V99.
      05  SHPS-EMP-PAY-FREQUENCY           PIC X(01).
      05  FILLER                          PIC X(45)  VALUE SPACES.
      05  FILLER                          PIC X(17)  VALUE ZEROES.
      05  FILLER                          PIC X(154) VALUE SPACES.
      05  FILLER                          PIC X(80)  VALUE ZEROES.
      05  FILLER                          PIC X(188) VALUE SPACES.

01  SHPS-TRAILER-RECORD.
      05  FILLER                          PIC X(09)  VALUE ALL '9'.
      05  FILLER                          PIC X(02)  VALUE ZEROES.
```

05	SHPS-TRAILER-CONTROL-NO	PIC X(05) VALUE '97001'.
05	SHPS-TRAILER-REC-COUNT	PIC 9(07).
05	FILLER	PIC X(11) VALUE ZEROES.
05	SHPS-TRAILER-HCRA-TOTAL	PIC S9(9)V99.
05	FILLER	PIC X(11) VALUE ZEROES.
05	SHPS-TRAILER-DCRA-TOTAL	PIC S9(9)V99.
05	SHPS-TRAILER-HCRA-ANNUAL	PIC S9(9)V99.
05	SHPS-TRAILER-DCRA-ANNUAL	PIC S9(9)V99.
05	FILLER	PIC X(44) VALUE ZEROES.
05	FILLER	PIC X(667) VALUE SPACES.

Table Updates

System Messages Table (PPPMSG):

A new message will be created for the modified PPP465 processing.

C08465060103033PER PPPSHP TABLE, INSERTED PPPPIR ALREADY PROCESSED FOR SHPS

New messages will be created for new program PPP466.

A08466010100099UNABLE TO OPEN SHPS CURSOR TO SELECT EMPLOYEES

A08466020100099UNABLE TO SELECT PER TABLE DATA FOR THIS EMPLOYEE

A08466030100099UNABLE TO SELECT PAY TABLE DATA FOR THIS EMPLOYEE

A08466040100099UNABLE TO OBTAIN LOCATION CODE FROM CCR

A08466050100099UNABLE TO OPEN DRC CURSOR FOR THIS EMPLOYEE

A08466060100099PPP466 FAILED WITH NEGATIVE SQL ERROR

Bind Members

PPP466

A new plan bind member will be created for program PPP466 .

```
BIND -
  PLAN(PPP466) -
  MEMBER(PPP466) -
    PPMSSG2, -
    PPCTTUTL) -
  ACTION(REPLACE) -
  RETAIN -
  VALIDATE(RUN) -
  ISOLATION(CS) -
  FLAG(I) -
  ACQUIRE(USE) -
  RELEASE(COMMIT) -
  EXPLAIN(YES)
```

PPOTRRRR

A one-time plan bind member will be created for one-time program PPOTRRRR .

```
BIND -
  PLAN(PPOTRRRR ) -
  MEMBER(PPOTRRRR) -
  ACTION(REPLACE) -
  RETAIN -
  VALIDATE(RUN) -
  ISOLATION(CS) -
  FLAG(I) -
  ACQUIRE(USE) -
  RELEASE(COMMIT) -
  EXPLAIN(YES)
```

JCL

PPP466

Sample JCL will be created for new program PPP466.

PPOTRRRR

Sample JCL will be created for one-time program PPOTRRRR .

Load and Unload PAR Tables

Sample JCL for adding the PPPSHP table to the PAR load and unload JCL will be created.

FTP JCL

The output file from PPP466 will be transmitted via FTP to UCOP for consolidation and transmission to SHPS. The target dataset name will be FTPUSRn.PUT.SHPS466.Smmmyy, where n is the normal location value for the campus used for FTP datasets, Ss is the occurrence of the bi-monthly file, e.g. S1 and S2, mmm is the month, e.g. JAN, yy is the year, e.g. 03. The file contains 800 byte fixed length records.

Each campus must establish appropriate FTP JCL per FTP instructions sent to technical contacts by Bruce James.