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**TPS HR SAP Summarisation & Transaction Corrections HLD**
**COMMERCIAL IN CONFIDENCE**

Ref:  EA/HLD/009
Version:  2.0~~2.0~~
Date:  ~~15/10~~24/11/04

| | |
|---|---|
| **Document Title:** | TPS HR SAP Summarisation & Transaction Corrections HLD |
| **Document Type:** | *High Level Design* |
| **Release:** | *S80* |
| **Abstract:** | *This document describes changes to TPS to generate feeds for HR SAP, POL MIS and CTS. It also describes changes to handle the passing of Transaction Corrections from POL FS back to the counters.* |
| **Document Status:** | ~~DRAFT~~APPROVED |
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| **Internal Distribution:** | |
| **External Distribution:** | |
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| Gareth Jenkins | Impact Design Authority RASD | | |
| | | | |
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# 0. Document Control

## 0.1 Document History

| Version No. | Date | Reason for Issue | Associated CP/PinICL |
|---|---|---|---|
| 0.1 | 25/05/04 | Initial issue. | |
| 0.2 | 07/07/04 | Changes in response to review comments. Addition of missing sections. | |
| 1.0 | 28/07/04 | Further feedback from second review Document submitted for approval | |
| 1.1 | 20/09/04 | Changes following feedback from developers and further review comments | |
| 1.2 | 15/10/04 | Minor changes | CP3843 |
| 2.0 | 24/11/04 | Minor corrections Document submitted for approval | |

## 0.2 Review Details

| Review Comments by : | July 19th 2004 |
|---|---|
| Review Comments to : | Originator |

| Mandatory Review Authority | Name |
|---|---|
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( * ) = Reviewers that returned comments

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## Associated Documents

| Reference | Doc | Vers | Date | Title | Src |
|---|---|---|---|---|---|
| TPS_AGENT_HLD | EA/HLD/010 | | | TPS Agent HLD | |
| TPS_AGENT_DES | AD/DES/047 | | | TPS Tables and Mappings for CSR+ | |
| GEN_AGENT_SPE | AD/SPE/006 | | | Agents Generic Database Table Interface Specification | |
| AIS_DWH | DW/IFS/021 | | | MIS BI3 TPS Application Interface Specification | |
| DP | EA/DPR/004 | | | IMPACT Release 3 Design Proposal | |
| TPS_POLFS_HLD | EA/HLD/007 | | | TPS POLFS Summarisation HLD | |
| MIGRATION | EA/HLD/008 | | | IMPACT Release 3 Migration HLD | |
| AIS_POLFS | EA/IFS/002 | | | POL FS to TMS/Horizon Transaction Corrections Interface Spec | |
| AIS_CTS | EA/IFS/005 | | | Horizon to POL Client Transmission Summaries AIS | |
| AIS_POLMIS | EA/IFS/006 | | | Horizon to POL Data Warehouse AIS | |
| AIS_HRSAP | EA/IFS/015 | | | Horizon to HR SAP System AIS | |
| AIS_FRTS | NB/IFS/012 | | | Bureau de Change Transaction Feed for FRTS | |
| LLD_TPSC201 | PI/LLD/023 | | | TPSC201 – Produce TIP Files | |
| REF_DATA | RD/DES/056 | | | Reference Data E2E HLD for S80 | |
| AIS_RDDS | RD/IFS/018 | | | RDMC/RDDS to TPS AIS | |
| FTMS | TD/ION/005 | | | FTMS Configuration for Pathway TPS to POCL TIP Links | |
| TPS_HLD | TI/DES/002 | | | TPS High Level Design | |
| TPS_OPS | TI/MAN/002 | | | TPS ~~Operations Manual~~Host Support Guide | |

**Unless a specific version is referred to above, reference should be made to the current approved versions of the documents.**

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## 0.4 Abbreviations/Definitions

### 0.4.1 Abbreviations

| Abbreviation | Definition |
|---|---|
| AIS | Application Interface Specification |
| BDC | Bureau de Change. |
| BCT | Bureau Control Totals (type of file which POL forwards on to FRTS) |
| BLE | Branch Ledger Entry |
| BTD | Bureau Transaction Data (type of file which POL forwards on to FRTS) |
| CAP | Cash Account Period |
| CBDB | Counters Business Database (to be replaced by POL FS at S80) |
| CFPO | Company Franchised Post Office e.g. Tescos<br><br>These must be differentiated in feed to HR SAP as remuneration of CFPOs and SPSOs is different. |
| CTS | Client Transmission Summaries |
| CTT | Counter Transaction Timings |
| DWH | Data Warehouse. In the context of this document, this refers to the warehouse which is operated by Fujitsu Services, partly for the monitoring of Service Level Agreements. |
| EDG | Electronic Data Gateway (POL) |
| EFT | Electronic Financial Transaction. Now referred to as Debit Card Transaction. EFT is still used to identify one of the transaction types within TPS. |
| EV | Environment Variable.<br><br>This is a UNIX variable which is local to a user and is typically used to identify directory paths The EV name is normally prefixed by a "$" e.g. $TIP_OUTPUT |
| FTMS | File Transfer Management Service – A Fujitsu Services service that supports reliable file transfers to and from POL |
| FRTS | First Rate Travel Services; handle Bureau de Change transactions for Post Office Ltd. |
| HR SAP | The SAP System used by Royal Mail Group's Human Resources to pay sub-postmasters |
| MSU | Management Support Unit |
| NRDS | New Reference Data System – POL system which provides ref data for RDMC |
| NWB | Network Banking |
| OPTIP | Operational TIP (see TIP) |
| OTX | Encompasses all Post Office counter transactions with a customer, that is, EPOSS, APS, OBCS, NWB, EFT & BDC transactions. |
| PIVOT | Post Office Volumes of Transactions.<br><br>This is a POL database holding volumes and values of Monthly Summarised Product data. Current source of HR SAP remuneration data and is being replaced by data generated by TPS at S80 |
| POL FS | Post Office Ltd's Financial System |
| POL MIS | Post Office Ltd's Management Information System. This receives daily feeds of transaction data. |
| RDDS | Reference Data Distribution Service. Host database application which feeds "soft" data to Counter Applications and to TPS. Also used to identify the database itself. |

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| RDMC | Reference Data Management Centre. Host database application that works as a front end to RDDS. Also used to identify the database itself. |
|---|---|
| RMG | Royal Mail Group |
| SPSO | Scale Payment Sub-Post Office. There are 15000+ occurances. |
| TIP | Transaction Information Processing – a POL system which is being removed at S80. This system is normally referred to as OPTIP. |
| TMS | Transaction Management System. Originally this was the part of Riposte that handled the messaging between the Post Offices and the Correspondence Servers. However, within Impact it is used to refer to the component that interfaces to POL |
| TPS | Transaction Processing System. Prior to S80, the role of this application was to collect transaction information and send it to MIS and TIP. At S80, its role is considerably broader. |

## 0.4.2 Definitions

| Term | Definition |
|---|---|
| Agent | A component of the Horizon architecture, which links Host Systems to Riposte. There are two basic sorts – **Harvester Agents** and **Bulk Loader Agents**.<br><br>Note that it is used in other documents to refer to a person working in a Branch. In this document it is solely used to refer to the Horizon System component. |
| Branch | The term used for any Post Office whether operated directly by POL or on their behalf by a sub-postmaster. In the past the term Outlet was used |
| Branch Trading Statement | A report providing a summary of what has happened within a Branch during a Trading Period |
| Bulk Loader | A software Agent that transfers data from a Host System to Riposte |
| Business Day | In the context of this document, this is the Maestro Business Day, which is defined as 8am on Day 1 to 8am on Day 2. |
| Clerk | A person working in a Branch who uses Horizon |
| Counter | The terminal used by a clerk when interacting with Horizon. Note that there are also "back office" counters in some larger branches which are purely for administrative functions. |
| Data Centre | The Central Systems run by Fujitsu Services in their Data Centres of Bootle and Wigan. |
| Deferment | In the context of HR SAP, this is the delay between the receipt of the transaction and inclusion of the data in a feed file to HR SAP. |
| Desktop | The software that provides the interface to Horizon for a Clerk |
| End of Day | End of Day is defined as taking place 30 mins after the scheduled closing time (in Reference Data) for a Branch or 19:00 whichever is earlier.<br><br>Horizon has a mechanism whereby background processes can be triggered to operate in the Branch at the End of Day time, for example to trigger the harvesting of that day's transactions. |
| Error Notice | A manual mechanism by which Central Post Office Ltd accounting functions can request corrections are made to branch accounts following various errors. This is to be replaced by *Transaction Corrections* at S80. |
| FAD Code | Unique identifier for a Branch (FAD = "Financial Accounting Division") |
| Harvester | A software Agent that transfers data from Riposte to a Host System |
| Horizon | That part of Post Office Ltd's System developed and operated by Fujitsu Services |
| Host | A component of the Horizon architecture that supports databases and database processing |
| Huthwaite | The location of Post Office Ltd's Data Centre |

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| Term | Definition |
|------|-----------|
| Maestro | The Job Scheduling software used within Horizon |
| Messagestore | The storage mechanism used by Riposte |
| Mode | Identifies the business functions under which a counter transaction is being carried out. |
| Outlet | No longer used. This term has now been replaced by *Branch*. |
| Pivot | Subsystem within CBDB, which is operated by Prism, on behalf of POL. Its role is to generate HR SAP feed files and it is being replaced by new functionality in TPS at S80. |
| Postmaster | The person responsible for a Branch. |
| Prism Alliance | The organisation that is responsible for the development, operation and support of Royal Mail Group's central systems including those of Post Office Ltd. |
| Product | Something that is transacted at a counter. Products may be Stock products or Service products. |
| Reference Data | A mechanism by which parameter values are held outside code in such a way that they can be easily updated through defined processes |
| Sub-File | That part of a file of data that holds the data associated with a single Branch's trading on a single Trading Day. |
| Summarisation | This is the process of taking the information from a set of transactions and producing a summary total of the overall net effect of such transactions. |
| Trading Day | The accounting day within a Branch. It is defined as the period between two successive End-of-Days.<br><br>Any transactions that take place after the end of the Trading Day are considered to be part of the following Trading Day. |
| Transaction | This represents an EPOSSTransaction written to the Riposte message store.<br><br>The sum of the sale values of all Transactions within a Customer Session will always be zero thus enabling normal double entry book-keeping to be carried out. |
| Transaction Correction | An automated mechanism by which the Central Post Office Ltd accounting functions can request corrections are made to branch accounts following various errors. This replaces *Error Notices* at S80. |

## 0.5   Changes in this Version

| Version | Changes |
|---------|---------|
| ~~1.1~~2.0 | The main changes in this version are:<br><br>1. HR SAP Summarisation<br>~~- in TPSC207, when copying reference data from RDDS, if problems with copy~~<br><br>~~- if current file sequence is 9999, set number back to 0001    then just output a warning if before Point 25 in migration~~<br>~~- introduce new routine StartExportHRSAPFile to just do file handling for HRSAP~~<br>~~- call StopExportFile to tidy up at the end~~<br>~~- don't perform partitioning using HADDIS procedures   call ALTER TABLE directly~~<br>~~- change ctt_number to varchar2(10)~~<br><br>2. Transaction Corrections<br>- raise alert if no file received for current Business Day (CP3843 – CR276) |

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- change validation performed for Error Code 042

~~2.Transaction Corrections~~
~~- add extra validation to check that:~~
~~a) error qty is non zero for mode ids 91 and 92~~
~~b) error qty is zero for other mode ids~~
~~c) value is zero for mode ids 91 and 92~~
~~d) transaction correction not already received in this or previous file~~
~~- perform automatic housekeeping on table TPS_TT_FILE_DETAIL~~
~~- change validation of article/instruction with regards to accounting sense~~
~~- introduce a new directory for NFS share ($POLFS_INPUT_SHARE)~~
~~- create links for auditing purposes in existing directory ($POLFS_AUDIT)~~

~~3~~3. POL MIS Data Feed
~~- remove new variable $POLMIS_OUTPUT i.e. use $TIP_OUTPUT instead for~~
~~transaction files for POL MIS~~
~~- for bureau transactions only, get the quantity from purchased_quantity field~~
~~- cater for longer quantity field when processing rejected files~~
~~- suppress transactions for new EPOSS events by filtering against a list of~~
~~products in a new reference table~~
~~- add 2 new columns to TMS_RX_EPOSS_EVENTS tables to capture~~
~~adjustment amount and txn correction count~~
~~- increase length of event_id field to number(10)~~
- change interface to POLMIS
a) CP3843 – CR272
b) to remove cash_account_period, cash_account_day and balance_period -
these were omitted when AIS was created, but change was not picked up


4. Migration
- identify harvester table whose constraints are being added at Point 104. ~~CTS~~
~~Data Feed~~
~~- no need to cater for CTX files being returned in response to error detected by~~
~~POL~~

~~5. Removal of Cash Account Processing~~
~~- stop Host CA Reconciliation at Point 10 in migration~~
~~- do not delete any of the CA tables, but when Point 10 is reached, truncate the~~
~~reference tables and stop populating them~~

~~6. Migration~~
~~- only perform one update to the Maestro schedule (at Point 10)~~
~~- specify tablespace for all new tables (either TPS_REF_DATA or~~
~~TPS_FACT_DATA)~~
~~- specify required changes to existing Roles~~
~~- create additional table and sequences for use by Loader Agent~~
~~- increase set of allowable values for file_type field in TPS_FILE_REGISTER~~
~~- define constraint changes at Point 10 and Point 40~~
~~- defines sequences which should be created~~
~~7. General~~
~~- replace "_" by " " in the names of the new system parameters e.g. replace~~
~~"TC_SOURCE" by "TC SOURCE"~~

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## 0.6   Changes Expected

| Changes |
|---|
| None~~The only know issues outstanding are concerning:~~ |
| ~~1) signs in HR SAP summarisation~~ |
| ~~2) BCT file in the FRTS feed~~ |
| ~~Both issues are awaiting a response from POL.~~ |

| | | | |
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# 1.  Introduction

Prior to S80, TIP provided the interface between TPS and other processes within POL. In some cases it merely passed the TPS generated files onto a 3$^{rd}$ party e.g. bureau transaction files are passed onto FRTS. In other cases, TIP generated files for onward transmission using the transaction data provided by TPS e.g. Cash Account data for CBDB, which in turn generated remuneration data for HR SAP.

One of the major changes in S80 is the removal of TIP and CBDB from the POL arena. Therefore processing previously performed by TIP, which is still relevant, is being absorbed into TPS or moved elsewhere.  Also new functionality is being introduced which must also be handled by TPS, such as the processing of Transaction Corrections being passed from POL FS back to the counters.

**Formatted:** Bullets and Numbering

## 1.2.  Scope

This document describes changes to TPS to:

- generate a new feed file for HR SAP

- process Transaction Corrections provided by POL FS, passing the corrections down to the counters.

- pass the transaction files directly to POL MIS and perform several minor changes to the files e.g. inclusion of extra transaction data

- pass the bureau files directly to POL, for onward transmission to FTRS, and cater for the removal of Cash Account Period

- pass the Client Transaction Summaries directly to POL

- remove all processes connected with Cash Account reconciliation and handling of Balance Periods

- copy related Reference Data from RDDS

The document does NOT cover:

- details of the Bulk Loader Agent, which loads Transaction Correction messages into the message store. The details of new agents for this development are in **TPS Agent HLD** [TPS_AGENT_HLD] and **TPS Tables and Mappings** [TPS_AGENT_DES]

- the generation of Branch Ledger Entry statements for passing to POL FS. This is described in **TPS POLFS Summarisation HLD** (TPS_POLFS_HLD)

- details of the file transfer process. Details of all the new FTMS Services will be covered in **FTMS Configuration for Pathway TPS to POCL TIP Links** [FTMS]

## 2.3. Architecture

### Prior to S80



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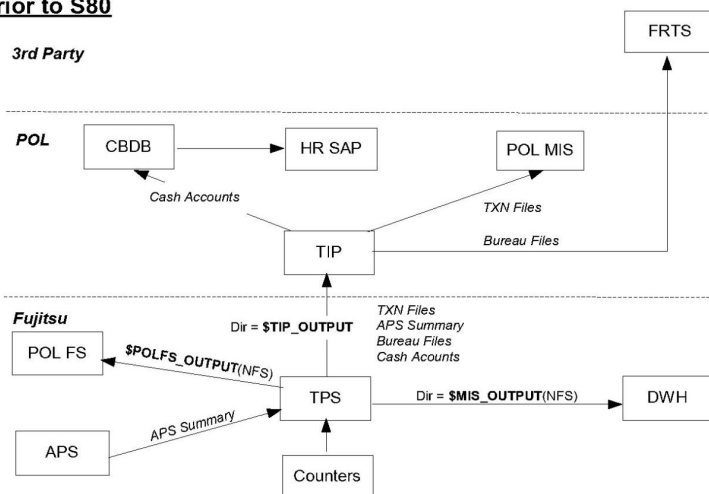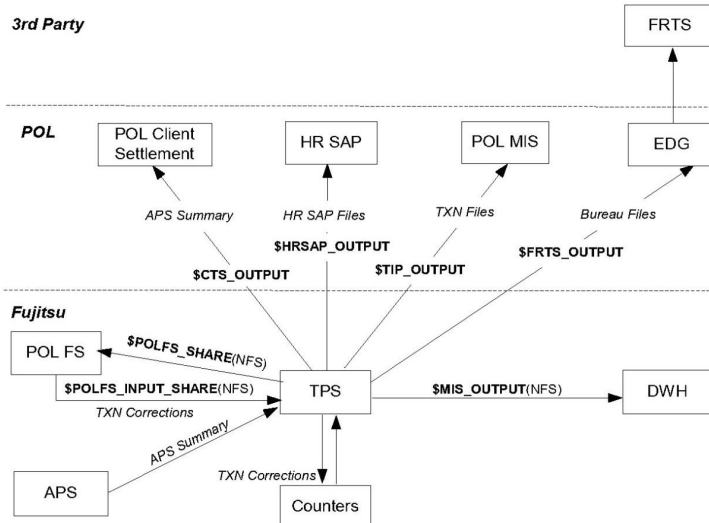
## 3.4. Design Specification

### 3.14.1 File Transfers

#### 3.1.14.1.1 From TPS

##### 3.1.1.14.1.1.1 FTMS Services

**Prior to S80**

| EV | TPS Host Directory | Target System | 1 char abbrev | FTMS Pickup File Extension | FTMS Success ACK File Extension | FTMS Fail NAK File Extension |
|---|---|---|---|---|---|---|
| $TIP_OUTPUT | /bvnw01/tps/trans/**tip** | TIP | T | *.TP_.pz | *.TPR | *.TPX |

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With the removal of TIP, TPS becomes responsible for transferring files to more destinations, as summarised below:

| EV | TPS Host Directory | Target System | 1 char abbrev | FTMS Pickup File Extension | FTMS Success ACK File Extension | FTMS Fail NAK File Extension |
|---|---|---|---|---|---|---|
| $TIP_OUTPUT | /bvnw01/tps/trans/**polmis** | POL MIS | T | *.TP_.pz | *.TPR | *.TPX |
| $HRSAP_OUTPUT | /bvnw01/tps/trans/**hrsap** | HR SAP | S | *.hrp.pz | *.HRR | *.HRX |
| $CTS_OUTPUT | /bvnw01/tps/trans/**cts** | POL CTS | C | *.TP_.pz | *.CTR | *.CTX |
| $FRTS_OUTPUT | /bvnw01/tps/trans/**frts** | FRTS | F | *.BTD.pz *.BCT.pz | *.FRR | *.FRX |

The new FTMS services required will be described in FTMS. Note that the existing "TIP files" are transferred to a new directory (…/polmis), but the EV remains the same ($TIP_OUTPUT). Also we will never receive NAK files from HR SAP, or CTS (and probably not for FRTS).

##### 3.1.1.24.1.1.2 NFS Mounts

Note that this section does not describe NFS mounts, which are created as part of the implementation of an FTMS service or are used by the Audit/SSC Archive Servers. It just describes mounts, which are used in isolation to make files available on remote systems. There are no changes between pre-S80 and S80 – the following is included just for completeness.

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| EV | TPS Host Directory | Target System |
|---|---|---|
| $POLFS_SHARE | /bvnw01/tps/trans/**polfs_share** | POL FS |
| $MIS_OUTPUT | /bvnw01/tps/trans/**mis** | DWH |

### 3.1.2~~4~~.1.2    To TPS

#### 3.1.2.1~~4~~.1.2.1  NFS Mounts

**Prior to S80**

There are currently no NFS Mounts used for transferring files from POL to TPS

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| EV | TPS Host Directory | Source System |
|---|---|---|
| $POLFS_INPUT_SHARE | /bvnw01/tps/trans/**polfs_input_share** | POL FS |

## 3.2~~4~~.2    HR SAP transaction summarisation and data feed

### 3.2.1~~4~~.2.1   Overview

HR SAP is a system run by RMG to pay Postmasters.  It is fed by summaries of value and volume of a subset of transactions, which are the basis of the Postmaster's pay. Prior to S80, the HR SAP feed was generated by CBDB, using data supplied by TIP. At S80, TIP is removed and TPS must therefore assume responsibility for the generation of the HR SAP feed.

There are two main criteria in construction of the HR SAP feed:

- the delivery schedule
- the deferment between receipt of the transaction and delivery of the data

The **delivery    schedule**    is    determined    by    the    branch,    using    firstly    table TPS_OUTLETS to define the mapping from branch to HR SAP Group and secondly table TPS_HR_SAP_SCHEDULES to define the mapping from HR SAP Group to period and delivery date.

The different classes of branch are identified by their HR SAP Group. There are 3 classes of branch:
a) SPSO - their data is delivered monthly according to one schedule        (HR SAP Group=Pivot)
b) CFPO- their data is delivered monthly according to another schedule     (HR SAP Group=Pivot2)
c) Directly Managed Branches - their data is NOT sent to HR SAP        (HR SAP Group=null)

The **deferment** for an HR SAP Group is determined by the product/transaction mode pair. Note that the deferment is the gap between receipt of the transaction and inclusion of the data in a feed file to

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HR SAP. Every product/mode pair maps to a CTT number using table TPS_HR_SAP_MAPPINGS (actually, there is NOT a mapping for every product mode pair….some product mode pairs may not have a CTT mapping) which in turn identifies the level of deferment using table TPS_HR_SAP_CTT_NUMBERS. Finally, the HR SAP Group, HR SAP Period and deferment level identify the range of dates to be included, using table TPS_HR_SAP_DEF_PERIODS

There are 2 levels of deferment:
a) 2     - this is the majority of transactions
b) 1     - this is basically Lottery transactions
Note however that both deferment levels could map onto the same date range for a given period for either or both of the HR SAP Groups.

The current position required by POL is summarised in the following diagram. Two files are generated and passed to HR SAP every month:

- the PIVOT2 (i.e CFPO) extract includes transactions within a single date range i.e. the level 1 and level 2 deferment types have the same date range

- the PIVOT (i.e. SPSO) extract includes transactions from 2 date ranges i.e. level 1 and level 2 deferment types have the different date ranges
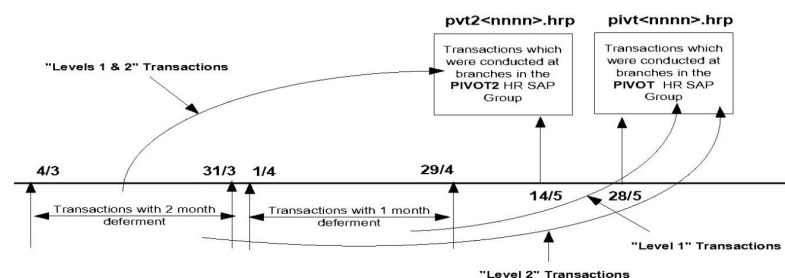


Two main processes are involved in the generation of the HR SAP feed files. Both processes run every day. It is assumed that the harvester interface tables (e.g. TMS_RX_APS_TRANSACTIONS) have already been summarised into an initial summary table (TPS_PROD_MODE_SUMMARIES) by an earlier daily process (see TPS_POLFS_HLD)

The **first process** performs the HR SAP summarisation from the initial summary table, TPS_PROD_MODE_SUMMARIES into TPS_HR_SAP_SUMMARIES. Basically, the summarisation is going up the HR SAP calendar hierarchy from trading date to period id. If the target table does not already contain a row for the period/branch/CTT then a new row is inserted. If it does contain the required row, then that row is updated by adding the totals derived from the source table to the existing totals in the target table.

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Not all rows from the initial summary table are summarised into the HR SAP table. Rows, which are ignored, are:

a) those for transactions which are not required by HR SAP - the required set is identified in reference data as product/mode pairs

b) those for transactions performed at Directly Managed Branches – these branches are identified in reference data

Therefore all rows, which are written to the summary table, will be used during the subsequent generation of the HR SAP file. The table will contain data for at least 4 periods (the current one plus the previous 3 periods) to allow the required time lag between the transaction taking place and delivery of the data to HR SAP. For each of these periods, there will be a row for every branch/CTT that has had some transactions.

The **second process** starts off by checking whether a delivery to HR SAP is due. Currently the following 2 files are delivered every month, using a schedule defined in reference data.

- **$HRSAP_OUTPUT/pivt<nnnn>.hrp**

   Contains transaction data from branches, which are in the "PIVOT" HR SAP Group. These are the SPSO branches.

- **$HRSAP_OUTPUT/pvt2<nnnn>.hrp**

   Contains transaction data from branches, which are in the "PIVOT2" HR SAP Group. These are the CFPO branches.

<nnnn> is an incrementing sequence number.

Each file contains data for a single period (the target period), which in turn comprises the set of eligible transactions whose trading date is between the start and end dates of the period (as defined in reference data)

The delivery schedule identifies the required delivery date, but TPS will start attempting to extract the file <d> days before, to allow for delays in extraction/delivery. <d> is configurable and is defined via a new parameter in TPS_SYSTEM_PARAMETERS. TPS will continue trying to create the file every night until it is successfully created.

Note that if the problem is non-delivery of the file, then TPS will not merely try to re-create the file. Such extractions would be empty since the summary table will have been updated to mark the data as having been delivered. The operator is made aware of the existence of a problem in the file delivery, which should cause an investigation to be instigated e.g. into the state of the FTMS gateway. When the file is eventually delivered successfully, everything will be tidied up automatically.

The expected schedule will have at least 2 weeks between end date of transactions to be included and the date when the corresponding summary data is required by HR SAP. Therefore there will be very few transactions, which are received too late for inclusion in their target file. However, allowance must be made for inclusion of late transactions in subsequent files, since this data forms the basis of Postmasters pay. Therefore the scan of the summary table must extract

a) all data for the current period

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b) all data for previous periods which has not already been delivered to HR SAP. All such data is marked as having been late

Note that the inclusion of late data in an extraction will not cause an exception to be raised since no action is required by MSU in response to it having occurred.

The files are delivered to HR SAP via a new FTMS service, which will acknowledge successful delivery of the file by returning a *HRR file to the gateway. Receipt of this will be detected and included in the standard Outward Delivery File, which is delivered to the DWH the following day.

## 3.2.24.2.2 Code

### 3.2.2.14.2.2.1  New Modules

#### 3.2.2.1.14.2.2.1.1     TPSC280  Summarise HR SAP Data

Function

TPSC280 extracts the transaction data for the current day from the initial summary table, TPS_PROD_MODE_SUMMARIES and summarises it into table, TPS_HR_SAP_SUMMARIES.

The target period is determined from the trading date using reference data. The majority of the rows will be for the same target period, since the source data will be primarily from a single trading date. However, it can also include data from previous trading dates (due to late receipt of data from a branch), which may be within the same period or an earlier one.

If a row already exists for the period/branch/CTT which hasn't already been delivered to HR SAP, then that row is updated.  Otherwise a new row is added to the target table.  Therefore there will only be a single non-delivered row for every period/branch/CTT.

Not all the data in the source table is required by HR SAP. The following categories of data are NOT required and are therefore not transferred to the target table:

- transactions of products which are not required – these do not have a product/mode to CTT number mapping defined in reference data (TPS_HR_SAP_MAPPINGS)
- transactions performed at branches which are not required i.e. Directly Managed Branches – these have a null value for attribute HR_SAP_GROUP in reference data (TPS_OUTLETS)

Each row added/updated has the last_updated_system_date field set to the current Business Day, so that *late data* can be identified subsequently.

Interface

TPSC280 does not expect any parameters.

Rerunability

If the module fails, then it can be rerun, since a commit of database changes is only performed on successful completion of the process.

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It guards against double insertion of transaction data in the summary table, by an initial check performed within the module. Common routine, StartControl, checks whether the process has already been called on the current day, using table TPS_PROCESS_CONTROL. If it has, then a second insertion is not done – instead the module will exit tidily.

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<u>Design</u>

TPS Common routines such as OraConnect() and Startup() are used so that, as far as possible, tasks common to several programs are performed in a consistent fashion and that the program is able to restart after a failure.

Logon to Oracle using OraConnect ().
Perform Initialisation using Startup ()
Perform process control (for restartability) using StartControl ()
    if 0 returned (i.e. already run successfully), then exit

Truncate intermediate table, TPS_HR_SAP_DAILY_SUMMARIES, with REUSE STORAGE

Create a union view of TPS_PROD_MODE_SUMMARIES (which is a view of partitions 1 to 64) with the 65$^{th}$ partition (TPS_PROD_MODE_SUMMARIES_65)

Summarise from the above view into TPS_HR_SAP_DAILY_SUMMARIES

- only include transactions for which cash_account_period is null or > final cash account period defined in TPS_SYSTEM_PARAMETERS

- join to TPS_OUTLETS on group_id to determine **hr_sap_group** – if the hr_sap_group is null (i.e. it is Directly Managed Branch) then ignore data

- join to PRODUCT_TRANS_MODE_HISTORIES on prod_id & trans_mode_id=0 to determine the **default accounting_sense** – this will have values '-' or '+'. If value = '-', then change the sign of total_transaction_quantity and total_transaction_amount by multiplying by -1

- join to TPS_HR_SAP_MAPPINGS on prod_id & trans_mode_id, where trading_date is between start_date and end_date, to determine **ctt_number** – if there is no mapping (i.e. transaction data is not required by HR SAP) then ignore data

- join to TPS_HR_SAP_CTT_NUMBERS on ctt_number to determine **deferment_type**

- join to TPS_HR_SAP_DEF_PERIODS on hr_sap_group, deferment_type & (trading_date between period_start_date and period_end_date) to determine **target_period_id**

- join to TPS_HR_SAP_SUMMARIES on target_period_id & group_id & ctt_number. If a rows exists AND delivered_period_id is NULL (i.e. data not delivered), then set **update_row** = "Y"
Otherwise, set **update_row** = "N"

During the summarisation:

- group by fields:     target_period_id, group_id & ctt_number

- sum fields:         total_transaction_quantity
                        total_transaction_amount
                        total_transaction_count

Merge TPS_HR_SAP_DAILY_SUMMARIES into TPS_HR_SAP_SUMMARIES

- if update_row = "Y", perform a bulk update summing fields
        quantity

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amount

txn_count

Set      last_updated_system_date = Business Day

- if update_row = "N", perform a bulk insert

  Set      last_updated_system_date = Business Day

  late_flag = "N"

Identify the process as having been completed successfully using StopControl()

Commit all transactions

### 3.2.2.1.24.2.2.1.2     TPSC281   Create HR SAP File

Function

TPSC281 creates an HR SAP file for passing to POL, according to the schedule defined in reference data. If a file is due, it is output in zipped format to the standard interface directory identified via EV $HRSAP_OUTPUT. From there it is picked up by FTMS and transferred to POL.

See AIS_HRSAP for the format of the content of the file.

The source data is obtained from table, TPS_HR_SAP_SUMMARIES and the name of the output file is constructed using a pair of parameters in TPS_SYSTEM_PARAMETERS. The parameter names are based on the HR SAP Group whose file is being created. For example, if the HR SAP Group is "PIVOT", then values of parameters PIVOT FILE PREFIX and PIVOT FILE SEQ are used to construct a filename of the form

**$HRSAP_OUTPUT/pivt1004.hrp.pz**

Any one call creates at most a single HR SAP file. If two files are due on the same day, only 1 will be created on the first day – the other file will be produced the following day.

Interface

TPSC281 does not expect any parameters.

Rerunability

If the module has not finished then it can be simply rerun provided it has not performed the final commit. If it has, then before re-running it, it will be necessary to tidy up the tables TPS_FILE_REGISTER, TPS_HR_SAP_SUMMARIES and TPS_SYSTEM_PARAMETERS to undo the committed changes, as described below.

If the module has finished, then re-running it will have no effect, since it will decide that the required file has already been created and therefore no action is required. However, if the file needs to be re-created (e.g. if it has been lost or is corrupt), then before re-running this process:

- delete the row from TPS_FILE_REGISTER for the file which was created (so that the process will re-create the file)

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- update TPS_HR_SAP_SUMMARIES to set delivered_period_id back to NULL for the current target_period_id & hr_sap_group i.e. not delivered (so that the correct source data is picked up)

- update TPS_SYSTEM_PARAMETERS to decrement value of either of parameters "PIVOT FILE SEQ" or "PIVOT2 FILE SEQ", depending on which HR SAP Group is being created (so that the correct filename is constructed)

Design

TPS Common routines such as OraConnect() and Startup() are used so that, as far as possible, tasks common to several programs are performed in a consistent fashion and that the program is able to restart after a failure.

Logon to Oracle using OraConnect ()
Perform Initialisation using Startup ()
Perform process control (for restartability) using StartControl ()
     if 0 returned (i.e. already run successfully), then exit

This process is run every day and so the first action is to check whether a file is due to be created on the current day.

To allow for problems with extraction/delivery, the HR SAP file should be attempted to be extracted/transferred several days BEFORE the required delivery date, as defined in TPS_SYSTEM_PARAMETERS (parameter_name = "HR SAP CREATION OFFSET").

The successful creation/transfer of all files is recorded in TPS_FILE_REGISTER. In the case of HR SAP files, the file for a given hr_sap_group and hr_sap_period_id has been successfully created if a row for that group and period exists.

Therefore, a file is due to be created on the current day if there is a row in TPS_HR_SAP_SCHEDULES for which TODAY + creation offset >= delivery_date and there is not a corresponding row in TPS_FILE_REGISTER signifying successful creation of that file i.e. for the hr_sap_group and hr_sap_period_id defined in the row in TPS_HR_SAP_SCHEDULES

If a file is due, then carry on to create a file for the required hr_sap_group and hr_sap_period_id. If both files are due on the same day, just produce one – the other file will be produced the following day.

If no file is due, the exit returning 0

StartExportHRSAPFile is called passing in

    group  = value of hr_sap_group for required file  (to identify the system parameters to be used in constructing the filename)

This will open the required file for write access, returning the name of the file. A row is added to TPS_FILE_REGISTER for the file. Note that hr_sap_period_id is unset at this point signifying that the file has not been successfully created yet.

Truncate intermediate table, TPS_HR_SAP_MONTHLY_SUMMARIES, with REUSE STORAGE

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Summarise TPS_HR_SAP_SUMMARIES into TPS_HR_SAP_MONTHLY_SUMMARIES
It contains the data for:
a) the required hr_sap_group and hr_sap_period_id
b) the same group and previous periods, where the data has not already been delivered (i.e. data which has been received late)

> i.e. where      hr_sap_group = required value AND
>                 hr_sap_period_id <= required period AND
>                 delivered_period_id = NULL

> Join to TPS_HR_SAP_CTT_NUMBERS on ctt_number to identify how the quantity and txn_count fields in the source data are to be handled, to provide values for **quantity**

> Field **amount** is just derived by summing the amount field.

> If late data has been picked up, there are liable to be duplicate entries in the source table for the same group/CTT. To ensure there are not duplicates in the target table, group by these fields.

Using format definition in AIS_HRSAP and data in TPS_HR_SAP_MONTHLY_SUMMARIES, construct header and detail lines and write in zipped format to the output file. There will be a detail line for every row in the table. Note that, if negative then a leading minus sign is required in the Value and/or Volume fields in the file.

Update TPS_FILE_REGISTER to record the value of hr_sap_period_id for the required file – this denotes that the file has been successfully created.

Update TPS_HR_SAP_SUMMARIES to
a) set the delivered_period_id for all rows which were picked up above
b) set late_flag="Y" for all rows
>     where  delivered_period_id = required period AND
>            delivered_period_id NE target_period_id

Update TPS_SYSTEM_PARAMETERS to increment the value of the SEQ parameter for the appropriate group e.g. "PIVOT FILE SEQ".
If current value is 9999, set sequence number back to 0001

Call StopExportFile to
>     a) close output file
>     b) call StopControl
>     c) Commit transactions

### ~~3.2.2.2~~4.2.2.2  Changed Modules

#### ~~3.2.2.2.1~~4.2.2.2.1      TPSC211  Start of Day

<u>Function</u>

TPSC211 performs the "start of day" functions e.g. it sets the working day (SYSTEM DATE in table TPS_SYSTEM_PARAMETERS)

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Change

Create a new function DropCreatePartition() to perform the partition management on table TPS_HR_SAP_SUMMARIES.

This table is partitioned on a period (i.e. month) basis, so the majority of time no action is required.

The partition for a period only needs to be created at the beginning of that period i.e. when transactions are about to be received for that period. To allow for potential problems in the creation of the new partition, it actually attempts to create it 3 days before it is needed. The corresponding drop of the oldest partition(s) will be performed in the same run which creates the new partition, so old data is retained for the maximum possible time. Allowance is made to perform multiple drops of old partitions in case the drop the previous month could not be performed due to the partition containing transactions which had not been handed over. Each time this module performs some action on the partitions, it attempts to reduce the total number of partitions to 4.

To check whether action is required:

a) Identify the maximum target period which current system_date +3 maps to, using table TPS_HR_SAP_DEF_PERIODS

Note that whilst there are 2 levels of deferment, any given date will have 2 target periods -for the 1 month and 2 month deferments. However, the partition for the 1 month deferment (the lowest) will have been created the previous month when it would have been the maximum!

b) Using the metadata tables, check whether a partition exists for the target period. Allow for null target period (meaning do nothing) in case the reference table has not been populated when first called.

If a new partition is required then:

Identify the oldest partitions, such that dropping them will leave 3 partitions. Normally there will just be one which requires dropping – there will only be more if some very old transaction data has just turned up, which hasn't been handed over. Also during the migration, will start off with just 2 partitions – in this case, just create a partition.

For each of the old partitions, check that the data has been completely handed over
 i.e. no entries in TPS_HR_SAP_SUMMARIES for that period with
 delivered_period_id = null

 If all data in partition has been handed over then
  Delete partition, by calling ALTER TABLE, specifying DROP PARTITION

Create new primary partition by calling ALTER TABLE, specifying ADD PARTITION

### 3.2.2.2.24.2.2.2.2      TPSC210 Harvest Receipt Info

Function

TPSC210 performs 2 functions. It updates the TPS_TIP_SUB_FILE_REGISTER and TPS_FILE_REGISTER tables with the date that the TIP files were successfully received by POL. It also deletes any files in the $TIP_OUTPUT directory which are older than the File Retention Period (in days).

Change

Widen the scope so that it checks the receipt of ALL files transferred by FTMS – not just those which were transferred via $TIP_OUTPUT.

Additional receipt files to be handled are:

        $HRSAP_OUTPUT/<filename>.HRR
        $CTS_OUTPUT/<filename>.CTR
        $FRTS_OUTPUT/<filename>.FRR

In detail:

a) change main body of code to replace call to
        HandleReceipts();
by calls for each of the different receipt files
        HandleReceipts("TIP_OUTPUT","TPR");
        HandleReceipts("HRSAP_OUTPUT","HRR");
        HandleReceipts("CTS_OUTPUT","CTR");
        HandleReceipts("FRTS_OUTPUT","FRR");

b) change HandleReceipts to

Add 2 input parameters for the EV and Suffix

Pass the EV through to the call to getenv

Pass the Suffix through to the call to RenameFiles

b) change RenameFiles to

Add a single input parameter for the Suffix

If Suffix = "TPR", remainder of processing is as current i.e. update TPS_FILE_REGISTER and TPS_TIP_SUB_FILE_REGISTER with the tip_receipt_date

For all other Suffixes, just update field receipt_date in TPS_FILE_REGISTER. An update is not performed to TPS_TIP_SUB_FILE_REGISTER as these data types do not contain sub files.

### 3.2.2.2.34.2.2.2.3      TPSC206 Create Delivery File

Function

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TPSC206 creates the Outward Delivery File that records information about the timeliness of delivery of TIP files. This file is sent to the DWH via NFS mount $MIS_OUTPUT. The SLA indicator in the sub file register (TPS_TIP_SUB_FILE_REGISTER) is updated to denote delivery of the SLA information to the DWH and a check is performed for unacknowledged files.

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Change

Files generated by TPS are being delivered to different locations, as opposed to all files going to TIP. The destination is identified in the destination field in TPS_FILE_REGISTER

If destination = "T", then this identifies files which were sent via the existing "TIP interface" – they should be handled in the same way, with the information for the output file being extracted from TPS_TIP_SUB_FILE_REGISTER.

If destination = "S", "C" or "F" then this identifies files which were sent to the new locations – they should be handled as follows:

All information is retrieved from TPS_FILE_REGISTER

The files which have been successfully delivered AND not already been reported on have

    sla_reported = N
    AND
    receipt_date = not null

Allow for reporting on the delivery of multiple files for a given destination. For example, the FRTS feed comprises 2 files, so this will result in 2 rows being appended to the Outward Delivery File.

If    destination = "S" i.e. HR SAP, then

Construct a row containing the following fields with the same field spacing as the existing "TIP delivery lines", as defined in AIS_DWH

    file_id        = TPS_FILE_REGISTER.file_name
    source         = "TPS"
    destination    = see below
    c_date         = see below
    d_date         = TPS_FILE_REGISTER.receipt_date
    records        = 1
    FAD Code       = null

The **destination** is derived from TPS_SYSTEM_PARAMETERS using parameter_name =TPS_FILE_REGISTER.hr_sap_group + " DEST"

e.g. if the current value of hr_sap_group is "PIVOT" and TPS_SYSTEM_PARAMETERS contains parameter_name = "PIVOT DEST" with a value of "HRS2", then destination = "HRS2"

The **c_date** is derived from TPS_HR_SAP_SCHEDULES delivery_date by subtracting the number of offset days defined in TPS_SYSTEM_PARAMETERS (parameter_name = "HR SAP CREATION OFFSET"). It is 00:00 on that day.

e.g. if delivery_date = 14/05/04 and the value of parameter "HR SAP CREATION OFFSET" is 3, then c_date = "11/05/04 00:00"

Note that the value of "HR SAP CREATION OFFSET" of 3 is the value which will be used and is therefore the value which should be assumed when changing the DWH metadata which drives the performance measures.

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If  destination = "C" i.e. CTS, then

Construct a row containing the following fields:

```
file_id        = TPS_FILE_REGISTER.file_name
source         = "TPS"
destination    = "CTS"
c_date         = TPS_FILE_REGISTER.start_date
d_date         = TPS_FILE_REGISTER.receipt_date
records        = 1
FAD Code       = null
```

If  destination = "F" i.e. FRTS, then

Construct a row containing the following fields:

```
file_id        = TPS_FILE_REGISTER.file_name
source         = "TPS"
destination    = "FRTS"
c_date         = TPS_FILE_REGISTER.start_date
d_date         = TPS_FILE_REGISTER.receipt_date
records        = 1
FAD Code       = null
```

Set sla_reported = "Y", so the file will not be reported on again.

To cater for files, which have been created, but not successfully delivered, extend function Check_receipt_date to check for unacknowledged files in TPS_FILE_REGISTER – it currently just performs checks at the sub-file level, using table TPS_TIP_SUB_FILE_REGISTER.

### ~~3.2.2.2.4~~4.2.2.2.4    TPSC207  Harvest Branch Info from RDDS

Function

This module copies reference data from RDDS to TPS.

Change

Note that this document just describes changes which are required for  HR SAP and Transaction Correction processing. Further S80 changes are described in TPS_POLFS_HLD.

The general policy with regards to handling errors during the accessing of the RDDS tables should be:

```
if      error occurs
then    if S80 MIGRATION POINT < 25
        then    rollback any changes, output a warning message and continue
        else    rollback any changes, raises an exception and exit with a failure
```

a) HR SAP Changes

Add a new function **UpdateHRSapData** to replace the contents of tables:

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TPS_HR_SAP_CTT_NUMBERS
TPS_HR_SAP_DEF_PERIODS
TPS_HR_SAP_MAPPINGS
TPS_HR_SAP_SCHEDULES

The tables are copied from tables/views in RDDS as described below.

| Table/View in RDDS | Table in TPS | Column omitted during copy from RDDS to TPS |
|---|---|---|
| HR_SAP_CTT_NUMBERS | TPS_HR_SAP_CTT_NUMBERS | creation_date<br>change_id |
| HR_SAP_DEF_PERIODS | TPS_HR_SAP_DEF_PERIODS | version_number<br>creation_date<br>change_id |
| HR_SAP_MAPPING_HISTORIES | TPS_HR_SAP_MAPPINGS | version_number<br>creation_date<br>change_id |
| HR_SAP_SCHEDULES | TPS_HR_SAP_SCHEDULES | version_number<br>creation_date<br>change_id |

Change function **ReadRDDS** to cater for the addition of the following fields to TPS_OUTLETS

office_status
hr_sap_group

b) Transaction Corrections change

Populate new table
TPS_TRANS_MODE_CONVERSIONS
with fields
pocl_trans_mode_type_code
pathway_trans_mode_type_code

c) Removal of Cash Account Processing changes

The set of reference tables which are used for Cash Account processing no longer need to be populated

Therefore replace calls to

call ReadRDDSCashAccTables()
call genDenormalisedCACData()

by

a call to new function ReadRDDSProductData() to populate tables
PRODUCT_TRANS_MODE_HISTORIES
PRODUCT_HISTORIES

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~~3.2.2.3~~4.2.2.3  **Common Routines**

~~3.2.2.3.1~~4.2.2.3.1      **StartExportFile**

Function

This routine constructs the filename to be created and opens the file for write access. A row is inserted into TPS_FILE_REGISTER for the new file.

For example

    if    dest = "T" ; filetype = "TP_",

    then   filename = **$TIP_OUTPUT/<data centre>_<tip_date><seq_num>.TP_.pz**


Change

Cater for the additional destinations:

If    dest = "C", output file to directory **$CTS_OUTPUT**
       the remainder of the filename is constructed in the same way as for dest="T"

If    dest = "F", output file to directory **$FRTS_OUTPUT**
       the remainder of the filename is constructed in the same way as for dest="T"

All updates to TPS_FILE_REGISTER should set:

    destination         =
    sla_reported     = N

The other new fields being added are all nullable.


~~3.2.2.3.2~~4.2.2.3.2      **StartExportHRSAPFile**

Function

This routine constructs the filename for HR SAP files only and opens it for write access. A row is inserted into TPS_FILE_REGISTER for the new file.

It is a new routine and is based upon StartExportFixedSequenceFile.


Description

Pass in group = <HR SAP Group>

Perform the following actions:

1) filename = **$HRSAP_OUTPUT/<xxxx><yyyy>.hrp.pz**

where  <xxxx> is extracted from TPS_SYSTEM_PARAMETERS for
       parameter_name = <HR SAP Group> FILE PREFIX e.g. pivt

       <yyyy> is extracted from TPS_SYSTEM_PARAMETERS for
       parameter_name = <HR SAP Group> FILE SEQ e.g. 1001

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2) include the <HR SAP Group> in the row which is added to TPS_FILE_REGISTER

Set      destination          = S
         sla_reported         = N

3) the sequence number is 4 digits – as opposed to 3 digits.

Note that the length of the variable is passed to LPAD when it is being zero filled to the   correct length, prior to being incremented ready for the next run.

### 3.2.34.2.3   Performance Considerations

#### 3.2.3.14.2.3.1  Partitions and Indexes

The only table requiring partitioning/indexing is  TPS_HR_SAP_SUMMARIES.

It will have:

- **Range Partitioning** on target_period_id, as opposed to List Partitioning. Four primary partitions are required – the current period plus the previous 3 periods. This will allow for the required 2 month deferment, plus an extra month for very late transactions being harvested. i.e. transactions which are harvested between 10 and 16 weeks after they occurred.

  Note that if List Partitioning were used, then more partitions would need to be retained to accommodate the late transactions. For example, with Range Partitioning, if a transaction turned up 20 weeks late, after the partition containing it's target partition had been dropped, then it will merely be inserted into the oldest existing partition. However, in the case of List Partitioning, the update will fail if the required partition does not exist.

- **Sub Partitioning** on Hash (Group ID)

- A local index (prefixed) on hr_sap_group, group_id and ctt_number

#### 3.2.3.24.2.3.2  Tablespaces

With regards the mapping from tablespaces to partitions there are 4 options

- store all partitions within the table in a single tablespace

- allocate a tablespace per primary partition

- allocate a tablespace per sub partition

- allocate a tablespace per primary/sub partition pair

The $2^{nd}, 3^{rd}$ and $4^{th}$ options allow more control over the allocation of data across multiple disks, and therefore enable the level of parallelism to be controlled more accurately. For example, it is known that the vast majority of data access will be to the most recent primary partition i.e. the most recent period. Therefore, to achieve the full benefit of the parallel access performed by Oracle, it is desirable that a single period is stored on several physical disks. However, this introduces an extra level of complexity and a maintenance overhead, which is not warranted by the relatively low data volumes. Therefore the $1^{st}$ option is the chosen one

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The name of the single tablespace is:

TPS_FACT_DATA

### 3.2.44.2.4   Volumetrics

#### 3.2.4.14.2.4.1  Main Assumptions

Branches

- number of branches (SPSO)         = 16000
- number of multiples CFPO)         = 250
- number of Directly Managed Branches   = 600

Product/Modes

- number of CTT numbers         = 200
- number of product/transaction mode pairs   = 3000

Proportion of products transacted by a single branch

- each day         = 10 %
- each period (month)         = 50 %

#### 3.2.4.24.2.4.2  Tables sizes

The following new tables are being added to the database:

TPS_HR_SAP_CTT_NUMBERS

This table contains a row for every CTT.

Estimated size = **200 rows**

TPS_HR_SAP_DEF_PERIODS

This table contains a row for every HR SAP Period/deferment. The elapsed period would vary during the year, as the data is aged in RDDS, from a maximum of approx 18 months (to allow for late arrival of data)

Estimated size = **36 rows**

TPS_HR_SAP_MAPPINGS

This table contains a row for every product/transaction pair, which has a corresponding CTT number

Estimated size = **3000 rows**

TPS_HR_SAP_SCHEDULES

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This table contains a row for every HR SAP Period/HR SAP Group. The elapsed period would vary during the year, as the data is aged in RDDS, from a maximum of approx 18 months (to allow for late arrival of data)

Estimated size = **36 rows**

### TPS_HR_SAP_DAILY_SUMMARIES

This table contains a row for every period/branch/CTT for which transactions were harvested in the current run. Normally the data will be for a single period.

Estimated size = 16250 * 200 * 0.1 = **0.32 million rows**

### TPS_HR_SAP_MONTHLY_SUMMARIES

This table contains a row for every branch/CTT for which there were transactions in the current period. The data will be for a single period.

Estimated size = 16250 * 200 * 0.5 = **1.6 million rows**

### TPS_HR_SAP_SUMMARIES

This table contains a row for every target period id/branch/CTT number.

Assuming 4 periods worth of data must be kept, to allow inclusion of products transacted 2 months in arrears

There will be approx
16250 * 200 * 0.5 * 4 = **6.5 million rows**

### 3̶.̶2̶.̶4̶.̶3̶4.2.4.3  File sizes

### $HRSAP_OUTPUT/pivt<nnnn>.hrp

This file contains all the "PIVOT data" i.e. SPSO for a single period

There will be approx
16000 * 200 * 0.5 = **1.60 million rows**

Max row length = 40

Assuming average length of rows is half the maximum, the unzipped file will be approx
1.6 * 20        = **32 MB**
Note that the file will be created as a zipped file and will therefore be considerably smaller.

### $HRSAP_OUTPUT/pvt2<nnnn>.hrp

This file contains all the "PIVOT2 data" i.e. CFPO for a single period

There will be approx
250 * 200 * 0.5 = **25,000 rows**

Max row length = 40

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Assuming average length of rows is half the maximum, the unzipped file will be approx

25000 * 20 = **0.5 MB**

Note that the file will be created as a zipped file and will therefore be considerably smaller.

NB: The above file sizes are more or less in line with the predicted data volumes in AIS_HRSAP (Section 2.9)

### 3.2.5~~4~~.2.5   Housekeeping

#### 3.2.5.1~~4~~.2.5.1  Database

The summary data contained in TPS_HR_SAP_SUMMARIES does not need to be kept indefinitely. Once it has been extracted and delivered to HR SAP there is no real need to retain it and in fact it would have a detrimental effect on performance if it were allowed to grow unnecessarily large.

Housekeeping of the table is performed by dropping the oldest partition, once it has been confirmed that all data in it has been handed over to HR SAP. This is performed by the Start of Day process (see 4.2.2.2.1)

All other new tables being introduced are small and their size is controlled by RDDS, or are truncated before being re-populated.

#### 3.2.5.2~~4~~.2.5.2  Filestore

The files contained in the new host directories described in 5.3.7.1 need to be included in the standard housekeeping performed in TPSHouseKeep.sh.

This is performed by virtue of the update to table TPS_FILES_TO_HOUSEKEEP as described in 5.3.6.

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## ~~3.3~~4.3 Transaction Corrections

### ~~3.3.14~~.3.1 Overview

The handling of Transaction Corrections is a new set of business processes to enable corrections to be made to the Branch accounts as a result of various central investigations. It involves the sending of a file of corrections from POL FS to TPS. TPS performs some validation and translation on the data and then sends the resultant messages onto the counters. It replaces the existing Error Notice functionality, which is a totally manual process.

Currently there is only one agent interfacing with TPS – the **TPS Bulk Harvester**, which is responsible for transferring messages from the counters to TPS. Handling of Transaction Corrections involves the creation of a second agent – the **TPS TC Bulk Loader**, which will be responsible for transferring messages from TPS to the counters, where counter staff can process them.

In summary the whole process works as follows:

- The central accounting function decides that it is necessary to make some adjustment to the Branch accounts

- A Transaction Correction is defined which will carry out the necessary changes (i.e. the central user will define an amount to be transacted for a given Product in a given Branch and a corresponding settlement Product)

- The Transaction Correction will also define a list of possible actions that the Branch Manager can take and also text to be presented to the Branch Manager informing him / her of the affect of carrying out any of these actions.

- A daily file of such Transaction Corrections is generated from POL FS and passed to TPS overnight

- TPS receives this file from an NFS mounted interface directory, validates the data and performs the required translations using reference data. For example, it converts the SAP Article Id into a Horizon Product.

- TPS sends messages for the Transaction Corrections to the specified branches. It uses the normal Bulk Loader technology (including the use of Acks from the Branch to acknowledge successful receipt of the Transaction Correction). A single message is written for the appropriate Branch for each Transaction Correction.

- Changes at the Counter enable a person with the required role to
  a) be made aware of the existence of outstanding Transaction Corrections
  b) apply any of theses corrections

- The result of processing a Transaction Correction will normally be the creation of the specified Transactions, which will be returned to POL FS as part of the normal flow of Summarised Transaction data at the end of the Trading Day on which the Transaction Correction was processed at the Branch.

As stated above, Transaction Corrections is a daily feed from POL FS to TPS. Normally a single file will be delivered, containing all the transaction corrections generated in a single Business Day. However, delivery could also include corrected txn correction files from previous days. Although not expected, there is a possibility that no file is delivered. Therefore on any one day, an indeterminate number of txn correction files will be delivered. The code must cope with all eventualities.

There are 3 directories concerned with transaction corrections, which are identified by the following EVs:

- **$POLFS_INPUT_SHARE**
  Identifies directory on POLFS host (NFS mounted on TPS host). Will contain
  a) the transaction correction files created by POLFS
  b) error files generated by TPS and then copied from $POLFS_INPUT by TPS
  Housekeeping of files in this directory is the responsibility of POLFS
- **$POLFS_INPUT**
  Identifies directory on TPS host. Will contain
  a) the transaction correction files copied from $POLFS_INPUT_SHARE by TPS
  b) error files generated by TPS
  Housekeeping of these files is performed by TPS
- **$POLFS_AUDIT**
  Identifies directory on TPS host. Will contain
  a) links to transaction correction files received into $POLFS_INPUT
  b) links to error files generated in $POLFS_INPUT
  Housekeeping of these files is performed by the audit system. Note that this is an existing directory which is used for auditing the current set of files sent to POLFS.

The name of the input file name generated by POLFS is:

**if<yyyymmdd><nnn>.tcn**

where   <yyyymmdd>   is the date when the file was first generated
         <nnn>          is the sequence number, starting at 001 for an Original file

It contains:

- 1 header line
- a detail line for each Transaction Correction required
- 1 trailer line

TPS will process all possible lines of the file(s), unless the header or trailer fails, in which case the whole file is rejected. All errors, whether at the file level or the individual correction level, are reported back to POL in an error file. There is a single error file for each input file, which contained errors.

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The name of the error file returned to POLFS is:

**if<yyyymmdd><nnn>.err**

where   <yyyymmdd>   is the date of the failed file
            <nnn>            is the sequence number of the failed file

It contains:

- 1 header line

- an error line for each error detected, which could be more than the number of lines containing errors e.g. if the header line contained an invalid date and invalid file identifier fields, there will be two error lines corresponding to the invalid header line

- 1 trailer line

All the Transaction Correction processing is contained within a single Maestro schedule (described in APPENDIX 2: Maestro Scheduler), which is executed once every day. For simplicity, and ease of re-starting, it has been split into multiple smaller processes as described below:

- A **Pre-Process** job checks for Transaction Correction files in the interface directory ($POLFS_INPUT_SHARE). For each new file, a row is added to the control table, TPS_TC_FILE_DETAIL and the file pre-processed prior to loading the data into the database. This involves copying the file to the local directory ($POLFS_INPUT), creating a link to it in the audit directory ($POLFS_AUDIT) and then checking the structure of the file is correct and that the header and trailer records themselves are valid and consistent (e.g. the checksums in the trailer are correct). Any errors result in rows being written to table, TPS_TC_ERRORS, to identify the error.  All errors associated with the header or trailer cause the entire file to be rejected.

  The output from this process is a single file containing all the Transaction Correction detail lines for all the input files, with valid header and trailer lines, which existed in $POLFS_INPUT. Each line has two extra fields added to identify the source filename and record number in the file, so that any errors in the detail lines can be mapped back to the original input file.

- An **Initial Load** is performed to load the pre-processed file into table, TPS_TC_DETAIL, using SQL*Loader. No specific validation is performed at this stage.

- The **Load TMS Table** process performs the bulk of the validation of the detail lines contained in TPS_TC_DETAIL and converts

  a) article to horizon product
  b) instruction to horizon product
  c) allowed modes to modes

  Any errors cause just the record containing the error to be rejected. Rows are written to TPS_TC_ERRORS to identify all the errors in the rejected record.

  All valid and complete rows are written to the agent interface table, TMS_TX_TPS_TC_DETAIL.

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- The **Create Error File** process reads TPS_TC_ERRORS ~~-and~~ and creates an error file for each source file, which contained errors. Therefore if there were no errors, then no error file is created. The name of the file is based upon the name of the original file.

- The **TPS TC Bulk Loader** agent is run to extract the data from TMS_TX_TPS_TC_DETAIL, form it into attribute grammar and send the messages to the counter via Riposte. A single message is written for the appropriate Branch for each Transaction Correction.

- Finally, the **End Job** process tidies up. In particular, it renames the input file in both $POLFS_INPUT_SHARE and $POLFS_INPUT to

    if<yyyymmdd><nnn>.TCN

    so that it will not be picked up again.
    This process also checks that a file has been received for the current Business Day – provided it is not a Sunday. If no file has been received, an alert is raised.

### 3.3.2~~4~~.3.2   Error Handling

#### 3.3.2.1~~4~~.3.2.1  Overview

TPS validates the supplied file of Transaction Corrections to ensure that:

- it is consistent within itself e.g. the checksums within the trailer match the totals in the individual detail lines

- the corrections, when sent to the counters by the Agent Loader, are capable of being actioned e.g. the product/item is capable of being transacted in the requested mode

If any errors are detected in the header or trailer, then the whole file is rejected. However, errors in individual detail lines only cause that detail line to be omitted i.e. not passed onto the counters.

All errors are notified back to POL by the creation of an error file:

    **if<yyyymmdd><nnn>.err**

where  <yyyymmdd>  is the date of the failed file
       <nnn>        is the sequence number of the failed file

One error file is created for each txn correction file, which contained errors. If no errors are detected, then no error file is created.

The file is created initially in directory identified by $POLFS_INPUT and then copied to $POLFS_INPUT_SHARE from where POLFS access it. In addition, a link is created in $POLFS_AUDIT for audit purposes.

Housekeeping of files in the 3 directories is performed as follows:

- $POLFS_INPUT – performed automatically by TPS

- $POLFS_AUDIT – performed automatically by audit system

- $POLFS_INPUT_SHARE – this is on POL FS's host and as such is their responsibility

The general principle with validation is that as many errors are detected and notified back to POL as possible. For example, if a header file contains both invalid Source and Version fields, then both errors

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will be detected and reported in the error file. However, some errors, such as wrong number of fields, are liable to cause numerous "incorrect errors" if checking were continued. Therefore, such errors cause the cessation of checking on the current row.

A full description of the format of the error file is contained in AIS_POLFS

### ~~3.3.2.2~~4.3.2.2  Errors Codes

The following table contains columns:

| | |
|---|---|
| Error Code | This is the code, which identifies the type of error. It is written to the error file. |
| Description | This is a description of the error. The $1^{st}$ 30 chars are written to the error file. |
| Validation | This is the test, which is performed. |
| Rec Type | This is the type of record in error. |

THZ = Header
TDZ = Detail
TTZ = Trailer

These are the values which are required in the error table.

Note that the set of error codes below is an extension of the set described in AIS_POLFS. This AIS will be updated in due course to reflect the following definitive set.

| Error Code | Description | Validation | Rec Type |
|---|---|---|---|
| 001 | Invalid 'Label Identifier' field | 'Label Identifier' field is "TCNH1", "TCINV", "TCCRM" or "TCNTR"<br><br>NB:<br>1. this will also be caused by the line having no ";" in it<br>2. there is no easy way to identify the type of record in error, since that is what this field is doing. However, all error codes are required to have a "record type" associated with them – hence the value of "TDZ". | TDZ |
| 002 | Invalid 'Source' field | 'Source' field is as contained in TPS_SYSTEM_PARAMETERS – parameter_name=TC_SOURCE e.g. "POLFS" | THZ |
| 003 | Invalid 'Version' field | 'Version' field is as contained in TPS_SYSTEM_PARAMETERS – parameter_name=TC_INTERFACE_VERSION e,g, "01" | THZ |
| 004 | Invalid 'Date & Time' field | 'File Creation Date & Time' field must be a valid:<br>a) date = yyyymmdd<br>b) time = hhmmss<br>c) not be in the future | THZ |
| 005 | Invalid 'Original or Correction' field | 'Original or Correction' field must be 'O' or 'C'. | THZ |

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| Error Code | Description | Validation | Rec Type |
|---|---|---|---|
| 006 | Invalid' File Identifier' field | 'File Identifier' field is a valid format:<br>a) format is **if< <yyyymmdd><nnn>.tcn**<br>b) date is not in the future<br>c) file has not already been received<br>d) matches terminal filename | THZ |
| 007 | Branch FAD code does not exist | Outlet exists in TPS_OUTLETS | TDZ |
| 008 | Branch FAD code is Permanently Closed | Outlet exists in TPS_OUTLETS, with office_status ne '1' | TDZ |
| 009 | Branch FAD code is Temporarily Closed | Outlet exists in TPS_OUTLETS, with office_status ne '2' | TDZ |
| 010 | Line Count is incorrect | Count of detail records = 'Line Count' in trailer record | TTZ |
| 011 | Value Sum is incorrect | Sum of the 'Value' fields in detail records = 'Value Sum' in trailer record | TTZ |
| 012 | Non numeric value | All number fields in detail and trailer records are numeric | TDZ |
| 013 | NULL supplied for mandatory detail field | A value has been supplied for all of fields 1 to 9 and field 11 in the detail record | TDZ |
| 015 | Last record is not Trailer | Last record is the trailer record | TTZ |
| 016 | First record is not Header | First record is the header record | THZ |
| 017 | Quantity Sum is incorrect | Sum of the 'Quantity' fields in detail records = 'Quantity Sum' in trailer record | TTZ |
| 018 | Article/Instruction cannot be mapped to a Horizon Product with the correct accounting sense | Article/Instruction is valid and can be mapped to a Horizon Product with the correct accounting sense<br>i.e.   if article, then TCINV/TCCRM should map to default_prod_**pos**/default_prod_**neg**<br>if instruction, then TCINV/TCCRM should map to default_prod_**neg**/default_prod_**pos** | TDZ |
| 021 | Allowed Modes is invalid | Allowed Modes exists in TPS_TC_MODES_MAPPING | TDZ |
| 022 | Quantity and Value are both 0 | Either Quantity or Value is > 0 | TDZ |
| 030 | Header has incorrect number of fields | Number of fields is 6 | THZ |
| 031 | Detail has incorrect number of fields | Number of fields is 11 | TDZ |
| 032 | Trailer has incorrect number of fields | Number of fields is 4 | TTZ |
| 033 | Duplicate header record | Only 1 header record | THZ |
| 034 | Duplicate trailer record | Only 1 trailer record | TTZ |

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| Error Code | Description | Validation | Rec Type |
|---|---|---|---|
| 035 | Article does not exist | Article exists in TPS_POL_FS_ARTICLES | TDZ |
| 036 | Product does not exist | Product exists in PRODUCT_HISTORIES | TDZ |
| 037 | Product is not valid | Product exists within date range specified in PRODUCT_HISTORIES (start_date to end_date) | TDZ |
| 038 | Product cannot be transacted in required mode | Entries exists in PRODUCT_TRANS_MODE_HISTORIES for the product and all the transaction modes which the 'Allowed_Modes' field has been translated to | TDZ |
| 039 | Quantity is outside permitted range for product | If Quantity has been specified, it is within the range specified in PRODUCT_HISTORIES (minimum_quantity to maximum_quantity) | TDZ |
| 040 | Value is outside permitted range for product | If Value has been specified, it is within the range specified in PRODUCT_HISTORIES (minimum_value to maximum_value) | TDZ |
| 041 | Value is not a multiple of price | If Value has been specified and price override is NOT allowed then     if adjustment_price > 0         then check value is an exact multiple of adjustment_price         elsf (adjustment_price is NULL and retail_price > 0)         then check value is an exact multiple of retail_price         fi fi | TDZ |
| 042 | Value is supplied for product whose price cannot be adjusted | If Value has been specified and price override is NOT allowed then   if     adjustment_price = 0 or       adjustment_price is NULL and retail_price = 0   then   error   fi filf Value has been specified then either adjustment_price = 0 or (adjustment_price is NULL and retail_price = 0) | TDZ |
| 043 | Quantity not supplied for stock adjustment | If     Allowed_Modes is 91 or 92 then   check Quantity is non-zero | TDZ |
| 044 | Quantity is supplied for mode other than stock adjustment | If     Allowed Modes is not (91 or 92) then   check Quantity is zero | TDZ |
| 045 | Value supplied for stock adjustment | If     Allowed_Modes is 91 or 92 then   check Value is zero | TDZ |
| 046 | Duplicate transaction correction | An entry does not exist in TPS_TC_RECEIVED for the transaction correction (identified by SAP_Reference_ID and Iteration_Flag) | TDZ |
| 099 | Oracle SQL*Loader error | Validation performed by SQL*Loader: a) all fields are valid data types b) correctly formatted record (so that SQL*Loader can find field boundaries) c) no constraints violated | TDZ |

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### 3.3.34.3.3   Code

#### 3.3.3.14.3.3.1  New Modules

##### 3.3.3.1.14.3.3.1.1      TPSC282  TC Pre-Process

Function

TPSC282 checks for Transaction Correction files in the interface directory ($POLFS_INPUT_SHARE). The file names are assumed to be:

**$POLFS_INPUT_SHARE/if<yyyymmdd><nnn>.tcn**

where  <yyyymmdd>  is the date when the file was first generated
       <nnn>          is the sequence number, starting at 001 for an Original file

All files which match $POLFS_INPUT_SHARE /if*.tcn, but then fail any of the validation checks (e.g. file already received) are ignored and an error file is created by a later process. However, note that all validation of the file is performed on the file in $POLFS_INPUT i.e. after it has been copied over onto the TPS host.

All files which exist in $POLFS_INPUT_SHARE, but don't match if*.tcn (e.g. previously processed files which will have a TCN suffix) are ignored. There is no mention of any such files in the error file.

For each file with a valid name, a row is added to the control table, TPS_TC_FILE_DETAIL and then the file pre-processed.

This involves:

a) copying the file from interface directory $POLFS_INPUT_SHARE to local directory $POLFS_INPUT

b) creating a link in $POLFS_AUDIT to newly copied file in $POLFS_INPUT

c) checking the structure of the file is correct i.e. It contains:

- 1 header line, with correct number of fields
- 1 or more detail lines, with correct number of fields
  or
  no detail lines
- 1 trailer line, with correct number of fields

d) checking the header line is correct i.e. all fields contain valid values

e) checking the trailer line is correct i.e. all fields contain valid values – in particular it checks that the line count and check sums are correct for the preceding detail lines.

Any errors result in rows being written to table, TPS_TC_ERRORS, to identify the error.  All errors associated with the header or trailer cause the entire file to be rejected.  Errors associated with a detail line just cause that line to be rejected.

The output from this process is a single file in the local directory

**$POLFS_INPUT/tc_details.tmp**

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containing all the "valid" Transaction Correction detail lines for all the new input files which existed in $POLFS_INPUT and had valid headers and trailers. Each line has two extra fields added to identify the source filename and record number, so that any errors in the detail lines can be mapped back to the original input file. Note that the majority of the validation of the detail lines is performed by a later module.

If there are no files with valid headers and trailers, then the output file is not created.

Interface

TPSC282 does not expect any parameters.

Rerunability

If the module fails, then it can be rerun.

Design

TPS Common routines such as OraConnect() and Startup() are used so that, as far as possible, tasks common to several programs are performed in a consistent fashion and that the program is able to restart after a failure.

Logon to Oracle using OraConnect ().
Perform Initialisation using Startup ()
Perform process control (for restartability) using StartControl ()
    if 0 returned (i.e. already run successfully), then exit

To allow for re-running:

    Delete rows from TPS_TC_FILE_DETAIL where processed_flag = "N"
    Truncate table TPS_TC_ERRORS
    Delete intermediate file
    Delete output file ($POLFS_INPUT/tc_details.tmp)

Extract parameters from TPS_SYSTEM_PARAMETERS for validation of headers:

    parameter_name = TC_SOURCE ; parameter_name = TC_INTERFACE_VERSION

Identify all the files with names of the form **$POLFS_INPUT_SHARE/if*.tcn**

For each file:

    Copy file from $POLFS_INPUT_SHARE to $POLFS_INPUT

    Create link in $POLFS_AUDIT to newly copied file in $POLFS_INPUT

    Check that:
    a) remainder of the filename is correct format i.e. <yyyymmdd><nnn>
    b) date is not in the future
    c) file has not already been received i.e. no entry in TPS_TC_FILE_DETAIL

If    any errors
then  write row to TPS_TC_ERRORS (error_code = 006)
else  write row to TPS_TC_FILE_DETAIL to identify file(s) to be processed, assigning fields:
    file_name        = full file name
    receive_date     = current date
    create_date      = extracted from file name
    sequence_no     = extracted from file name
    error_in_hdr_flag = "N"
    error_in_trl_flag  = "N"
    error_in_dtl_flag  = "N"
    processed_flag   = "N"

Set record_number to 0

For each line in current file

    Increment record_number

    Split line on field separator ";"

    If Field 1 = "TCNH1", then it is a HEADER line

        Perform the following tests:

| test | error_code |
|---|---|
| 1. Number of fields is 6 | 030 |
| 2. Field 2 contains a valid source | 002 |
| compare against extracted value | |
| 3.Field 3 contains a valid version | 003 |
| compare against extracted value | |
| 4. Field 4 contains a valid date & time, | 004 |
| date = yyyymmdd ; time = hhmmss ; not in the future | |
| Note that the time in the TC file is GMT | |
| 5. Field 5 contains "O" (Original) or "C" (Correction file) | 005 |
| 6. Field 6 contains a terminal name which matches physical name | 006 |

        If any of the tests fail, then
            write a row to TPS_TC_ERRORS with specified error code
            if Test 1 fails, then do not perform remaining tests on current row
            reject entire file, but continue validating file to check for other errors

    If Field 1 = "TCINV" or "TCCRM", then it is a DETAIL line

        Increment line count (detail_line_count)

        Perform the following tests:

| test | error_code |
|---|---|
| 1. Number of fields is 11 | 031 |
| 2. Value supplied for fields 1 to 9 and field 11 | 013 |
| 3. The following fields are numeric | 012 |
| Field 2 i.e. group_id | |

Field 4 i.e. value
Field 5 i.e. quantity

Field 8 i.e. allowed_modes

If any of the tests fail, then
    write a row to TPS_TC_ERRORS with specified error code
    if Test 1 fails, then do not perform remaining tests on current row

If current row is valid, then
    Add value of Field 4 to detail_value_sum
    Add value of Field 5 to detail_quantity_sum
    Prefix current line with
        terminal filename (e.g. if20040624001.tcn)
        record_number
            with a ";" separator between each field
    Write line to intermediate file

If Field 1 = "TCNTR" then it is a TRAILER line

Perform the following tests:

| test | error_code |
|------|------------|
| 1. Number of fields is 4 | 032 |
| 2. The following fields are numeric | 012 |
|     Field 2 i.e. line_count | |
|     Field 3 i.e. value_sum | |
|     Field 4 i.e. quantity_sum | |

If any of the tests fail, then
    write a row to TPS_TC_ERRORS with specified error code
    if Test 1 fails, then do not perform remaining tests on current row
    reject entire file

If current row is valid, then
    Extract Line_Count from field 2
    Extract Value_Sum from field 3
    Extract Quantity_Sum from field 4

If Field 1 contains any other value or is null (i.e. unable to split on ";"), then

    write a row to TPS_TC_ERRORS with error code = 001

Repeat    # all lines in current file read

Perform the following tests:

| test | error_code |
|------|------------|
| 1. First row was a header | 016 |
| 2. Last row read was a trailer | 015 |
| 3. Only 1 header line in file | 033 |

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4. Only 1 trailer line in file      034
5. Line count in trailer matches number of detail lines      010
6. Value_Sum in trailer matches sum of value in detail lines      011
7. Quantity_Sum in trailer matches sum of quantity in detail lines      017

If any of the tests fail, then
    write a row to TPS_TC_ERRORS with specified error code.
    reject entire file

If errors detected in header and/or trailer, then
    update current row of TPS_TC_FILE_DETAIL to set
    error_in_hdr_flag = "Y" and/or error_in_trl_flag = "Y"
else
    append intermediate file to output file **$POLFS_INPUT/tc_details.tmp**
end if;

delete intermediate file

update current row of TPS_TC_FILE_DETAIL to set detail_line_count

Repeat      # all files processed

Identify the process as having been completed successfully using StopControl()

Commit all transactions


### ~~3.3.3.1.2~~4.3.3.1.2     TPSX283.sh   TC Initial Load

Function

TPSX283.sh loads txn correction detail lines contained in file $POLFS_INPUT/tc_details.tmp, into table TPS_TC_DETAIL. If this file does not exist, signifying that there were not any txn correction files with valid headers and trailers, then this module does nothing – in such cases, it leaves the table empty.

The only validation which is performed at this stage is that which is performed by SQL*Loader e.g. to check that all fields are the correct data type. Any records, which fail its checks, are written to a "bad file", from where they are picked up by TPSC285.


Interface

TPSX283.sh does not expect any parameters.


Rerunability

If the module fails, then it can be rerun.

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|---|---|
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Design

This is a UNIX Shell script, calling SQL*Loader. It performs:

Truncate table TPS_TC_DETAIL

Delete "bad file" **$POLFS_INPUT/tc_details.bad**

If input file **$POLFS_INPUT/tc_details.tmp** exists, then there are detail lines to process

 Load input file into table, directing any rejects to the above "bad file".

### 3.3.3.1.34.3.3.1.3 TPSC284  TC Load TMS Table

Function

The **Load TMS Table** process performs the validation of the detail lines contained in TPS_TC_DETAIL and converts:

a) article to horizon product, storing the product id in the article field in the target table
b) instruction to horizon product, storing the product id in the instruction field in the target table
c) allowed modes to modes, storing the modes in fields mode_1,mode_2 and mode_3 in the target table. Note that mode_2 and mode_3 will be null if the allowed_modes only maps to 1 mode

Any errors cause just the record containing the error to be rejected. Rows are written to TPS_TC_ERRORS -to identify all the errors in the rejected record.

All valid and complete rows are written to the agent interface table, TMS_TX_TPS_TC_DETAIL.

Interface

TPSC284 does not expect any parameters.

Rerunability

If the module fails, then it can be rerun.

Design

**Note that due to the complexity of this module, the design is described in terms of the following pseudo code.**

*Main body of code*

Description:

 This is the controlling routine in the module to perform the conversion and validation of details lines in TPS_TC_DETAIL. The following tests are performed:

| test | error_code |
|---|---|
| 1. Branch exists | 007 |

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| | |
|---|---|
| 2. Branch exists and has not been permanently closed | 008 |
| 3. Branch exists and has not been temporarily closed | 009 |
| 4. Allowed modes is valid | 021 |
| 5. Quantity is >0 or Value is >0 | 022 |
| 6. Quantity is > 0 for stock adjustments (modes 91 and 92) | 043 |
| 7. Quantity is 0 for mode other than stock adjustment | 044 |
| 8. Value is > 0 for stock adjustment | 045 |
| 9. Transaction correction not received before (both this and previous runs) | 046 |

If any tests fail, then a row is added to TPS_TC_ERRORS.

Functions Convert_To_Product and Validate_Product are called, performing extra tests as described below.

Finally, for each row, which contained no errors, a corresponding row is written to TMS_TX_TPS_TC_DETAIL

Pseudo Code:

Logon to Oracle using OraConnect ().
Perform Initialisation using Startup ()
Perform process control (for restartability) using StartControl ()
       if 0 returned (i.e. already run successfully), then exit

To allow for rerunning and to delete old/processed messages, delete rows from TMS_TX_TPS_TC_DETAIL where actioned_ind = null

For each row in table TPS_TC_DETAIL

```
If      group_id exists in TPS_OUTLETS
then    if      branch is permanently closed (office_status ="1")
        then    write a row to TPS_TC_ERRORS with error code = 008
        elsf    branch is temporarily closed (office_status ="2")
        then    write a row to TPS_TC_ERRORS with error code = 009
        end if;
else write a row to TPS_TC_ERRORS with error code = 007
end if;

if      allowed_modes exists in TPS_TC_MODES_MAPPING
then    extract all values – there will be up to 3 modes
else    write a row to TPS_TC_ERRORS with error code = 021
end if;

if      quantity = 0 and value = 0
then    write a row to TPS_TC_ERRORS with error code = 022
end if;

if      allowed_modes is 91 or 92 i.e. stock adjustment
then    if      quantity=0
        then    write a row to TPS_TC_ERRORS with error code = 043
        fi
```

```
        if      value>0
        then    write a row to TPS_TC_ERRORS with error code = 045
        fi
else    if      quantity>0
        then    write a row to TPS_TC_ERRORS with error code = 044
        fi
end if;

if      entry exists in TPS_TC_RECEIVED for same SAP_Reference_id and
        iteration_flag
then    write a row to TPS_TC_ERRORS with error code = 046
end if;


call function Convert_To_Product to convert the article to a product
if conversion successful then  call Validate_Product

call function Convert_To_Product to convert the instruction to a product
if conversion successful then  call Validate_Product

If      no errors in the current row
then    write row to TMS_TX_TPS_TC_DETAIL specifying:

        group_id               = TPS_TC_DETAIL.group_id
        SAP_reference_id       = TPS_TC_DETAIL.SAP_reference_id
        iteration_flag         = TPS_TC_DETAIL.iteration_flag
        article                = prod_id from conversion of article
        instruction            = prod_id from conversion of instruction
        accounting_sense       = TPS_TC_DETAIL.label_id
        value                  = TPS_TC_DETAIL.value/100 (to convert pence
                                 to pounds and pence)
        quantity               = TPS_TC_DETAIL.quantity
        allowed_modes          = TPS_TC_DETAIL.allowed_modes
        mode_1                 = 1st mode from conversion of allowed_modes
        mode_2                 = 2nd mode from conversion of allowed_modes or null
        mode_3                 = 3rd mode from conversion of allowed_modes or null
        message                = TPS_TC_DETAIL.message
        client_reference_id    = TPS_TC_DETAIL.client_reference_id
        processed_tsmp         = null
        actioned_ind           = "N"

        write row to TPS_TC_RECEIVED specifying:

SAP_reference_id    = TPS_TC_DETAIL.SAP_reference_id
iteration_flag      = TPS_TC_DETAIL.iteration_flag
receive_date        = current date
end if;

Repeat  # all rows in table

Identify the process as having been completed successfully using StopControl()
```

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Commit all transactions

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***Convert_To_Product*** *function*

Description:

      This function converts the specified SAP article to a horizon product, performing the following tests:

| test | error_code |
|---|---|
| 1. Article exists | 035 |
| 2. The article maps to an horizon product with the correct accounting sense | 018 |

      If either tests fail, then a row is added to TPS_TC_ERRORS.

Input Parameters:

      file_name, record_number, field_number,
      label_id      - value supplied to label field e.g. "TCINV"
      article      - value supplied to article field (if not supplied, instruction is supplied)
      instruction      - value supplied to instruction field (if not supplied, article is supplied)

Return Parameter:

prod_id – 0 returned if conversion fails

Pseudo Code:

```
If      row exists in TPS_POL_FS_ARTICLES for specified article or instruction
then    if      label_id = "TCINV"
        then    if      article supplied
                then    if      default_prod_pos is set
                        then    this is the required product
                        else    write a row to TPS_TC_ERRORS with error code = 018
                        end if;
                else    if      default_prod_neg is set
                        then    this is the required product
                        else    write a row to TPS_TC_ERRORS with error code = 018
                        end if;
                end if;
        elsf    label_id = "TCCRM"
        then    if      article supplied
                then    if      default_prod_neg is set
                        then    this is the required product
                        else    write a row to TPS_TC_ERRORS with error code = 018
                        end if;
                else    if      default_prod_pos is set
                        then    this is the required product
                        else    write a row to TPS_TC_ERRORS with error code = 018
                        end if;
                end if;
        end if;
else    write a row to TPS_TC_ERRORS with error code = 035
end if;
```

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```
If     product found
then   return prod_id
else   return 0
end if;
```

***Validate_Product*** *function*

Description:

This function checks the product is valid, performing the following tests:

| test | error_code |
|---|---|
| 1. Product exists | 036 |
| 2. Product is within the start_date/end_date range | 037 |
| 3. Product can be transacted in all the required modes | 038 |
| 4. Quantity, if specified, is within the permitted range | 039 |
| 5. Value, if specified, is within the permitted range | 040 |
| 6. Value, if specified, is a multiple of price | 041 |
| 7. Value, if specified, can be adjusted | 042 |

If any tests fail, then a row is added to TPS_TC_ERRORS

Input Parameters:

file_name, record_number, field_number,
prod_id, value, quantity, mode_1, mode_2, mode_3

Return Parameter:　　"Y" - valid
　　　　　　　　　　　"N" - invalid

Pseudo Code:

```
If     row exists for specified product in PRODUCT_HISTORIES
then   if     outside date range (defined by start_date and end_date)
       then   write a row to TPS_TC_ERRORS with error code = 037
       else   # carry on with validating the product
              For each of modes which is not null
                     convert to numeric trans mode code, by joining to
                            TPS_TRANS_MODE_CONVERSIONS
                     if     no entry exists in PRODUCT_TRANS_MODE_HISTORIES
                     then   write a row to TPS_TC_ERRORS with error code = 038
                     end if;
              repeat

              If     quantity > 0
              then   if     outside range (< minimum_quantity or > maximum_quantity)
                     then   write a row to TPS_TC_ERRORS with error code = 039
                     end if;
              end if;

              If     value > 0
              then   if     outside range (< minimum_value or > maximum_value)
                     then   write a row to TPS_TC_ERRORS with error code = 040
```

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```
        end if;
        if      overide_price_allowed = "N"
        then    if      adjustment_price > 0
                then    if      value is not exact multiple of adjustment_price
                        then    write row to TPS_TC_ERRORS-code = 041
                        end if;
                elseif  (adjustment_price is NULL and retail_price > 0)
                then    if      value is not exact multiple of retail_price
                        then    write row to TPS_TC_ERRORS-code = 041
                        end if;
                end if;
        end if;
                if      adjustment_price = 0 or
                        (adjustment_price is NULL and retail_price = 0)
                then    write a row to TPS_TC_ERRORS with error code = 042
                fi
        end if;
        end if;
        end if;
else    write a row to TPS_TC_ERRORS with error code = 036
end if;

If      no errors detected
then    return "Y"
else    return "N"
end if;
```

### 3.3.3.1.44.3.3.1.4    TPSC285  TC Create Error File

Function

TPSC285 reads

a) table TPS_TC_ERRORS
b) file $POLFS_INPUT/tc_details.bad

and creates an error file for each source file, which contained errors.

If also updates TPS_TC_FILE_DETAIL to record the number of lines which contained errors. If there were no errors, then no error file is created.

The name of the error file is:

    $POLFS_INPUT/if<yyyymmdd><nnn>.err

where   <yyyymmdd> is the date of the failed file
        <nnn>           is the sequence number of the failed file

Each file contains:

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- 1 header line  (label_id="TCERH")

- an error line for each error in the table (label_id="TCERR")

- 1 trailer line (label_id="TCERT")

When the file has been created, a link is created to it from $POLFS_AUDIT and the file copied to $POLFS_INPUT_SHARE.

Interface

TPSC285 does not expect any parameters.

Rerunability

If the module fails, then it can be rerun.

Design

TPS Common routines such as OraConnect() and Startup() are used so that, as far as possible, tasks common to several programs are performed in a consistent fashion and that the program is able to restart after a failure.

Logon to Oracle using OraConnect ().
Perform Initialisation using Startup ()
Perform process control (for restartability) using StartControl ()
      if 0 returned (i.e. already run successfully), then exit

For each distinct file_name in TPS_TC_ERRORS and "bad file"
      Construct name of error file, by replacing "tcn" suffix by "err"
      Delete error file, in case this is a rerun
      Construct header:

            label_id      = "TCERH"
            date_generated= <date/time file was generated>
            file_in_error  = <terminal name of file containing error> e.g. if20040505010.tcn
            file_name     = <terminal name of error file> e.g. if20040505010.err

      Write header

      For each error in current file (recorded in TPS_TC_ERRORS)
            Construct error line:

                  label_id      = "TCERR"
                  record_type  = <value from field in TPS_TC_ERRORS>
                  error_code   = <value from current row>
                  error_desc    = <first 30 chars of value from TPS_TC_ERROR_CODES>
                  record_number= <value from current row>
                  field_number  = <value from current row>

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        Write error line
        Increment count
repeat

If "bad file" exists e.g. $POLFS_INPUT/tc_details.bad
        For each error in current file (recorded in "bad file")
            Construct error line:

                label_id      = "TCERR"
                record_type  = "TDZ"
                error_code   = "099"
                error_desc   = "Oracle SQL*Loader error"
                record_number= <value from current line>
                field_number = 0

            Write error line
            Increment count
        repeat

end if

Construct trailer:

        label_id     = "TCERT"
        count        = count of error lines, excluding header and trailer

Write trailer

Calculate number of detail rows, which contained errors (join to TPS_TC_ERROR_CODES on error_code where record_type="TDZ"). Allow for multiple errors on same line (i.e. count distinct record_number in TPS_TC_ERRORS).

If there were any detail lines in error, then
        Update TPS_TC_FILE_DETAIL and assign
            error_line_count = <value calculated above>
            error_in_dtl_flag = "Y"

repeat      # all distinct file_names in TPS_TC_ERRORS and "bad file"

Create link in $POLFS_AUDIT to newly created file in $POLFS_INPUT

Copy file from $POLFS_INPUT to $POLFS_INPUT_SHARE

Identify the process as having been completed successfully using StopControl()

Commit all transactions

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### 3.3.3.1.54.3.3.1.5 TPSC286 TC End Job

Function

~~TPSC287~~ TPSC286 tidies up at the end of the Transaction Corrections processing.

In particular, it:

- renames the input file(s) to if<yyyymmdd><nnn>.TCN in both $POLFS_INPUT_SHARE and $POLFS_INPUT

- updates TPS_TC_FILE_DETAIL to mark the files as having been processed

- checks whether a file has been received for the current Business Day (provided it is not a Sunday). If no file has been received, then an alert is raised. ←········· Formatted: Bullets and Numbering

Interface

TPSC286 does not expect any parameters.

Rerunability

If the module fails, then it can be rerun.

Design

TPS Common routines such as OraConnect() and Startup() are used so that, as far as possible, tasks common to several programs are performed in a consistent fashion and that the program is able to restart after a failure.

Logon to Oracle using OraConnect ().
Perform Initialisation using Startup ()
Perform process control (for restartability) using StartControl ()
      if 0 returned (i.e. already run successfully), then exit

For each of the current set of files i.e. those in TPS_TC_FILE_DETAIL with processed_flag="N"

      rename files in both $POLFS_INPUT_SHARE and $POLFS_INPUT, to change suffix to "TCN"
      update TPS_TC_FILE_DETAIL to set processed_flag="Y"

Repeat

If     current Business Day is not a Sunday
       AND
       an entry does not exist in TPS_TC_FILE_DETAIL for if<yyyymmdd>001.tcn
          where <yyyymmdd> identifies the Business Day
       AND
       "S80 MIGRATION POINT" >= 40

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then    raise alert by calling common function Log2System
fi

Identify the process as having been completed successfully using StopControl()

Commit all transactions

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### ~~3.3.4~~4.3.4 Volumetrics

#### ~~3.3.4.1~~4.3.4.1 Tables sizes

The following new tables are being added to the database. All are insignificant in size.

TMS_TX_TPS_TC_DETAIL

This table contains a row for every valid transaction correction received in the current day.

Estimated size = **1200 rows**

TPS_TC_ERROR_CODES

This table contains a row for every error, which is checked for in the txn correction file.

Estimated size = **30 rows**

TPS_TC_FILE_DETAIL

This table contains a row for every txn correction file received. There will be 1 new one, plus possible correction files, every day.

Estimated size = will increase by about **300 rows/year**

TPS_TC_MODES_MAPPING

This table contains a row for every mapping.

Estimated size = **20 rows**

TPS_TC_DETAIL

This table contains a row for every txn correction detail line in the files received in the current day.

Assuming
a) a txn correction is raised for 5% of branches each day
b) there is 1 detail line per affected branch

Estimated size = **1200 rows**

TPS_TC_ERRORS

This table contains a row for every error detected in the files received in the current day.

This will probably be in range **0 to 1200 rows**, assuming at most a single error in every expected detail line – although there could potentially be multiple errors detected in a single line. Either way, the expected size is insignificant.

#### ~~3.3.4.2~~4.3.4.2 File sizes

**$POLFS_INPUT/if<yyyymmdd><nnn>.tcn**

This file contains the Transaction Corrections created by POL. for the current day.

Estimated size = **1200 rows** or **55KB** (as defined in AIS_POLFS)

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**$POLFS_INPUT/if<yyyymmdd><nnn>.err**

This file contains the errors detected in the input file.

Estimated size = **120 rows** or **5KB**

### 3.3.54.3.5   Housekeeping

#### 3.3.5.14.3.5.1  Database

The following fact & control tables are being added:

TMS_TX_TPS_TC_DETAIL

All rows which have been processed (actioned_ind=null) are deleted every day TPSC284

TPS_TC_FILE_DETAIL

Old data is deleted by the standard housekeeping process

TPS_TC_RECEIVED

Old data is deleted by the standard housekeeping process

TPS_TC_DETAIL

Truncated every day

TPS_TC_ERRORS

Truncated every day

#### 3.3.5.24.3.5.2  Filestore

The files contained in the new host directories described in 5.3.7.1 need to be included in the standard housekeeping performed in TPSHouseKeep.sh.

This is performed by virtue of the update to table TPS_FILES_TO_HOUSEKEEP described in 5.3.6

Note that housekeeping of files in directories whose physical location is on the POLFS host (e.g. $POLFS_INPUT_SHARE) is the responsibility of POLFS.

## 3.44.4    POL MIS Data Feed

### 3.4.14.4.1   Overview

Prior to S80, TPS sent a whole host of files, which included the transaction files required by POL MIS, to TIP, via directory $TIP_OUTPUT. TIP then sent the files onto POL MIS as well as other locations. At S80, TPS will just send the files required by POL MIS to directory $TIP_OUTPUT. The other files will be sent to new interface directories described elsewhere.

There are 4 aspects, which need to be considered:

- Changing format of files sent to POL MIS
- Suppression of settlement transactions
- Preventing new events being sent to TIP during the migration
- Harvesting additional event information

#### 3.4.1.14.4.1.1   ~~Sending addition transaction data~~ Changing format of files sent to POLMIS

Sending additional transaction data for NWB, DCS and BDC transactions to POL MIS

There are a number of the more recent "specialised" transactions where all that is passed to TIP is the basic EPOSS Transactional Data. For the affected transactions types (NWB, DCS and BDC) a set of additional fields has been identified in AIS_POLMIS (Sections B5 and B6). These new fields need to be appended to the lines for these transaction types. However, these new fields **must not be sent** to TIP.

The inclusion of the extra transaction data must also be allowed for in the code, which processes rejected MIS files. It already caters for some "additional data" so the basic functionality is there e.g. OBCS transactions have an extra 3 fields added to the standard set. However, the length of the "additional data" in the resend tables is increased significantly by these changes.

Differentiation between different record types (CR272)

Currently all transaction detail lines have a Record Type of OTX. To enable it to be easier to identify which records have "additional data", each type of transaction is to have a different Record Type.

| Harvester Table | Record Type |
|---|---|
| TMS_RX_APS_TRANSACTIONS | APS |
| TMS_RX_BDC_TRANSACTIONS | BDC |
| TMS_RX_EFT_TRANSACTIONS | DCS |
| TMS_RX_NWB_TRANSACTIONS (application_type=NBA) | NBS |
| TMS_RX_NWB_TRANSACTIONS (application_type=ETU) | ETU |
| TMS_RX_EPOSS_TRANSACTIONS | OTX |
| TMS_RX_OBCS_TRANSACTIONS | OBP |
| TMS_RX_EPOSS_EVENTS | EVT |
| TMS_RX_OBCS_STATUSES | OBB |

NB: Events of Type 913 are sent to TPS via TMS_RX_OBCS_STATUSES, instead of TMS_RX_OBCS_STATUSES

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Changing to handling of signs (CR272)

There are 2 aspects:

a) Allow positive and negative values to be populated in the Amount and Quantity fields.

b) Populate Amount field with the sign recorded within Horizon i.e. remove processing converting negative to positive.

Removal of Cash Account and Balance Period fields

The following fields should be removed from the generated files:

     cash_account_period, cash_account_day and balance_period

This affects all modules generating or processing the POLMIS files i.e. TPSC287, TPSC240 and TPSC232.

Increasing the length of the Quantity field in the POL MIS Feed (to cater for the Turkish Lira)

This involves:

a) TPSC287 retrieving the quantity from the purchased_quantity field of harvester table TMS_RX_BDC_TRANSACTIONS (i.e. for Bureau transactions). For all other transactions types, it obtains the quantity from the quantity field of the harvester table.

b) changing the modules which process the rejected transaction files to cater for the increased length i.e. TPSC229 (possibly), TPSC240 and TPSC232

c) increasing the length of quantity field in TPS_RX_OTX_RESEND_x tables

There is no change to the Quantity field in the TPS transaction tables. This change has no impact on TPSC201.

### 3.4.1.24.4.1.2 Suppression of settlement transactions

Currently, there are a number of special products, which are used for settlement transactions. These 'settlement products' are managed by Fujitsu and do not come from POL as Type A Reference Data. Historically these products are of no interest to POL and in particular are not passed to TIP. In general this is achieved by suppressing such products in either the TPS Harvester or in the TPS Host. The current set of 'settlement products' is:

| Product Numbers | Category |
|---|---|
| 10639 & 10990 | Revaluations |
| 11212 & 11213 | Revaluations |
| 11101 | Adjustment |
| 11200 & 11201 | Transfers |
| 11202 – 11211; 11215 & 11216 plus others at S60 | Rems |
| 11214 | Parcel Traffic |
| 11217 - 11299 | Rems |
| 11300 - 11401 | Scales |
| 11999 - 12002 | BES |

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However at S80, these products are being converted to be "normal" products, which will not be suppressed by the TPS Harvester, and so the replacement products will need to be suppressed. Transactions on these 'settlement products' **must not be sent** to POL MIS (or TIP) and so the Reference Data is being enhanced to identify them, thereby allowing TPS to suppress them from the feed to POL MIS. A new field Transfer_Txn_To_MIS is being added to table PRODUCT_HISTORIES to allow identification of such transactions. Note that control of these products will be passed back to POL, since they need to be aware of those products used for summarisation to POL FS. This will result in them having new Product Ids allocated.

It should be noted that the products in the list above are present at the counter only. They do not appear in the product reference data that is presented to TPS. As these products will be eventually superseded by POL Products, they will appear with new product Ids in the range 1-9999. These will then have the Transfer_Txn_To_MIS field set to prevent them being from being sent to POL MIS.

### 3.4.1.34.4.1.3  Preventing new events being sent to TIP

A new group of EPOSS events are being introduced at S80, since there is a requirement to make the associated actions (e.g. remove excess cash) explicitly visible. These events **must not be sent** to TIP, since it will not be expecting them and will get annoyed. However they must be passed to POL MIS as soon as they start getting harvested. The events affected are:

| ID | Description |
|----|-------------|
| 55 | Trading Statement Created |
| 56 | Trading Statement Period rolled |
| 57 | Trading Statement Period Roll Abandoned |
| 58 | Excess Cash Removed |
| 59 | Cash Shortage Made Good |
| 60 | Cash Variance Report Previewed |
| 61 | Cash Variance Report Printed |
| 62 | Outstanding Transaction Correction Reminder Displayed |

Note that the above event ID's are "counter events", which are translated to "products" by the TPS Harvester. This requires a change to TMS_RX_EPOSS_EVENTS to increase the length or Event_Id to Number(10) to accommodate these product_ids. It is these "products" which will be sent to TPS and therefore must be temporarily excluded from the feed to TIP. This is achieved by filtering against a list of products in a new table TPS_TIP_EXCLUDED_PRODUCTS..

### 4.4.1.54.4.1.4  Harvesting additional event information

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Some of the new events require additional information harvesting and passing through to POLMIS. This involves:

a) adding new fields to the harvester interface table, TMS_RX_EPOSS_EVENTS

b) TPSC287 retrieving these new values, and including them in the relevant fields in the POLMIS files.

There is no impact on TPSC201.

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### ~~4.4.1.6~~4.4.1.5 Migration

There are migration issues with the transition to the S80 POL MIS feed. For example, there will be an overlap period during when the old TIP feed is continuing and new events are being harvested (Points 30 to 40 in Section 5.1). Whilst they could be handled with a single instance of code (TPSC201), it would mean introducing and retaining extra complexity in the module. Therefore the following approach is being adopted:

a) create a new module, TPSC287, based on TPSC201, but with extra functionality to
     cater for additional fields
     suppress the new settlement transactions
     cater for increase in length of the Quantity field
     cater for additional event information

b) change TPSC201 to
     suppress the new S80 events
     suppress the new settlement transactions

To allow for a single update to the Maestro schedule (at Point 10), then both TPSC201 and TPSC287 must detect the current position of the migration such that
a) before Point 40,
     TPSC201 is active and generating the transaction files for POL MIS
     TPSC287 does nothing
b) at and after Point 40,
     TPSC201 does nothing
     TPSC287 is active and generating the new style transaction files for POL MIS

Also, it should be noted that due to the changing format of the transaction files (i.e. by extension of quantity field and addition of extra fields), the code will not be able to handle processing of files which were rejected before Point 40, (i.e. old style) and then corrected and re-submitted by SSC after Point 40, since the code will be expecting new style transaction files at this point.

### 3.4.2

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### 3.4.34.4.2  -Code

#### 3.4.3.14.4.2.1 New Modules

##### 3.4.3.1.14.4.2.1.1    TPSC287  Produce POLMIS Files

Function

TPSC287 extracts APS, OBCS, EPOSS, NWB, DCP and BDC transactions, Order Book Statuses and EPOSS Events data from the TPS Host database and creates a series of flat data files containing the data extracted for these transactions and events.

Design

This module is based on TPSC201, but with the following changes:

a) Cater for additional fields, by changing functions:

- **NWB_Transaction** to include the extra fields specified in AIS_POLMIS (Section B6).

  Note that that the source table (TMS_RX_NWB_TRANSACTIONS) does not include field merchant_number – the field should be set to spaces. This table also includes "E Top-Up" transactions.

- **EFT_Transaction** to include the extra fields specified in AIS_POLMIS (Section B6)

  This function processes the DCS transactions

- **BDC_Transaction** to include the extra fields specified in AIS_POLMIS (Section B5)

b) Suppress settlement transactions by changing function

- **EPOSS_Transaction** to omit the settlement transactions.

  There is a new field in PRODUCT_HISTORIES called Transfer_Txn_To_MIS – set to "Y" or "N". Allow for a value of NULL (meaning transfer transaction) – this will occur if there is a delay between migration of the table and the correct data being available in RDDS. It is assumed that this field will be properly populated before any such transactions are generated.

c) Remove fields cash_account_period, cash_account_day and balance_period from detail lines.

ed) Cater for the increase in the length of the Quantity field from NUMBER(5) to NUMBER(14) in the POL MIS feed. For bureau transactions, retrieve the quantity from the purchased_quantity field. For all other transactions, retrieve it from the quantity field. i.e. as TPSC201 does currently

e) Identify the different transaction types via the new values for Record Type, as described above.

f) Allow positive and negative values to be populated in the Amount and Quantity fields.

g) Populate Amount field with the sign recorded within Horizon i.e. remove processing converting negative to positive

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dh) For events, include the values of adjustment_amount and txn_correction_count in the amount and quantity fields respectively.

i) For events, include the value of trading_period in the additional_data field. This should only be done for events for which the field is non-null in the TMS_RX table.

ej) The module should be active if system parameter "S80 MIGRATION POINT" >= 40. For all other values, output message saying "Migration Point 40 NOT reached. No action taken"

Note that for all reconciliation totals (including those for Bureau transactions) produced by TPSC287, the Quantity (not Purchased_Quantity) field will be used.

### 3.4.3.24.4.2.2 Changed Modules

#### 3.4.3.2.14.4.2.2.1 TPSC201 Produce TIP Files

Function

TPSC201 extracts APS, OBCS, EPOSS, NWB, DCP and BDC transactions, Order Book Statuses and EPOSS Events data from the TPS Host database and creates a series of flat data files containing the data extracted for these transactions and events.

Change

a) Suppress new S80 events by changing function

- **EPOSS_Event** to suppress the new counter events

  This is achieved by suppressing transactions whose product id is listed in TPS_TIP_EXCLUDED_PRODUCTS. This table will be populated with the set of products corresponding to the new counter events.

b) Suppress settlement transactions by changing function

- **EPOSS_Transaction** – same as in 4.4.2.1.1 i.e. use field Transfer_Txn_To_MIS in PRODUCT_HISTORIES

c) The module should be active if system parameter "S80 MIGRATION POINT" < 40. For all other values, output message saying "Migration Point 40 reached. No action taken"

#### 3.4.3.2.24.4.2.2.2 TPSC229 Strip out errored Sub-files & return rest of file to TIP

Function

TPSC229 reads the files returned by POL as errored (Original_Filename.TPX) together with the associated log file (.TPZ) and generates a good file (for returning to POL) and a bad file (for processing by the SSC)

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Change

If "S80 MIGRATION POINT" >= 40 then

a) cater for increase in the length of the quantity field in the POL MIS feed and the inclusion of additional fields in the detail lines for BDC, DCS (EFT) and NWB transactions.

b) if necessary, cater for change of Record Type from OTX to value identifying the transaction type – all the different transaction types should still be written to the same files

### 4.4.2.2.3    TPSC240  Load corrected 'errored Sub-files' into TPS

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Function

TPSC240 reads in the .OTE, .CAE and .STE files created by SSC and loads the details into the TPS_RX_OTX_RESEND, TPS_RX_STX_RESEND, TPS_RX_CAC_RESEND or TPS_RX_CLT_RESEND tables as appropriate. These tables are read by a later process to generate new files for sending to TIP.

Note that the CAE and STE files will no longer be relevant after Point 40.

Change

If "S80 MIGRATION POINT" >= 40 then

a) cater for increase in the length of the quantity field and the inclusion of additional fields in the detail lines for BDC, DCS (EFT) and NWB transactions. All the additional fields are to be included in an extended additional_data field in table TPS_RX_OTX_RESEND. The affected function is **ProcessOTXSubFile**

b) cater for removal of fields: cash_account_period, cash_account_day and balance_period

c) extend the check on record type=OTX_RECORD_PREFIX to include checks on all record types which will now be included in the file i.e. as identified in Section 4.4.1.1 , to ensure that all lines will be written to TPS_RX_OTX_RESEND

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bd) when called for parameters CAE and STE, then exit doing nothing

### 3.4.3.2.34.4.2.2.4    TPSC232  Create TIP OTX Resend File

Function

TPSC232 takes any data in the TPS_RX_OTX_RESEND table and uses it to create a transaction file for sending to POL.

Change

If "S80 MIGRATION POINT" >= 40 then

a) cater for increase in the length of the quantity field and the inclusion of additional fields in the detail lines for BDC, DCS (EFT) and NWB transactions.

b) cater for removal of fields: cash_account_period, cash_account_day and balance_period

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## 3.~~5~~4.5    FRTS Data Feed

### 3.5.1~~4~~.5.1    Overview

The FRTS feed consists of two files:

a) a Bureau Transaction Data file (BTD), which contains the base data
b) a Bureau Control Total file (BCT), which contains aggregations by Cash Account Period, Margin Product and Transaction Mode Code

Cash Account Periods will no longer be used in S80 (they are being replaced by Trading Periods) and therefore the BCT file will just be aggregated by Margin Product and Transaction Mode Code.

[DN: Not yet confirmed, but this is the working assumption]

Note that the Cash Account Period and Balance Period fields will still be in the generated file at S80, but they will both be null. [The necessary change to the table constraints is defined in Section 5.6]

With the removal of TIP, TPS has assumed responsibility for sending the output files to numerous different locations, as summarised in 4.1

This has implications on the feed of the Bureau files, which are transferred by POL to FRTS. Prior to S80, TPS output them to the directory identified by EV $TIP_OUTPUT. At S80, they will be output to the directory identified by EV $FRTS_OUTPUT.

Note that a change is required by POL to enable EDG to access the bureau files from the new interface directory. The interface between TPS and FRTS is defined in AIS_FRTS

### 3.5.2~~4~~.5.2    Code

#### 3.5.2.1~~4~~.5.2.1  Changed Modules

##### 3.5.2.1.1~~4~~.5.2.1.1    TPSC271  Generate Bureau Feed

Function

TPSC271 produces the Bureau de Change transactions feed for FRTS. It consists of two files – the BTD file and BCT file.

Change

Remove Cash Account Period from the aggregation which is performed for writing to the BCT file i.e. just perform aggregation on Margin Product and Transaction Mode Code.

The bureau files are now delivered to a different FTMS service. Therefore change call to StartExportFile to pass in dest = "F", to cause them to be output to the directory identified by EV $FRTS_OUTPUT.

## 3.6~~4~~.6    Client Transmission Summaries Data Feed

### 3.6.1~~4~~.6.1   Overview

With the removal of TIP, TPS has assumed responsibility for sending the output files to numerous different locations, as summarised in 4.1

This has implications on the Client Transmission Summaries file, of which one is created every day.

Prior to S80, TPS output it to the directory identified by EV $TIP_OUTPUT. At S80, it will be output to the directory identified by EV $CTS_OUTPUT.

There is no change to the content of the file.

### 3.6.2~~4~~.6.2   Code

#### 3.6.2.1~~4~~.6.2.1  Changed Modules

##### 3.6.2.1.1~~4~~.6.2.1.1     TPSC223  Create CTS File

<u>Function</u>

TPSC223 reads a flat file containing APS Client Summaries sent from the APS Host and generates a file that is later sent to TIP via FTMS. TPSC223 passes the CLT records present in the file sent from APS Host as it is but regenerates the Sub-File Header/Trailer and File Header/Trailer.

<u>Change</u>

The CTS file is now delivered to a different FTMS service. Therefore change call to StartExportFile to pass in dest = "C", to cause it to be output to the directory identified by EV $CTS_OUTPUT.

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## 3.74.7    Removal of Cash Account Processing

### 3.7.14.7.1   Overview

The move from a "one week Cash Account Period" to a "monthly Trading Period" means that all the schedules and processes concerned with Cash Accounts can be discontinued or made inactive.

The Host Cash Account Reconciliation is being stopped in Point 10. Therefore all modules, which are directly connected with it, can be removed from the codes set and the Maestro schedule at this point. The affected modules are:

| | |
|---|---|
| TPSC265 | TPS CAC Transaction Processing |
| TPSC266 | TPS CAC Stock Processing |
| TPSC267 | Generate Non Leaf CAC Lines |
| TPSC268 | Compare counter generated CA with HOST |

All other modules related to Cash Account processing need to remain active until Point 40, at which point they will become inactive. This will be achieved within the code, so that only one update to Maestro is required (at Point 10). The affected modules are:

| | |
|---|---|
| TPSC238 | Resend corrected CAC & STK files |
| TPSC251 | CA Control Reconciliation |
| TPSC252 | Counter reported CA Reconciliation Errors |
| TPSC255 | Create TPS_CA_LINE_COMAPARISONS table |
| TPSC256 | CA Line Comparison Report |
| TPSC269 | Offices with Over due CA |

In addition, the process that generates CAC / STX files for TIP (TPSC225) needs to suppress any cash accounts that are greater than the "final cash account", since there will be a short period during the migration when branches will be generating "cash account data" post the final cash account.

Finally, the process which swops the 'A' and 'B' tables at end of day (TPSC209) no longer needs to perform actions on the "cash account tables".

### 3.7.24.7.2   Code

#### 3.7.2.14.7.2.1  Changed Modules

##### 3.7.2.1.14.7.2.1.1      TPSC225  Create TIP CAC/STX files

Function

TPSC225 program creates the 'Cash Account and Stock Holding' files for the TIP interface. A file is produced for each non-empty partition of the TMS_RX_CASH_ACCOUNTS_p or TMS_RX_STOCK_HOLDINGS_p tables.

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Change

Suppress data if cash_account_period is > than value defined in "FINAL CBDB CAP" in TPS_SYSTEM_PARAMETERS.

The module should be active if system parameter "S80 MIGRATION POINT" < 40. For all other values, output message saying "Migration Point 40 reached. No action taken"

### 3.7.2.1.24.7.2.1.2    TPSC209  Drop temporary tables and swap A and B sets of TMS tables

Function

TPSC209 truncates the TMS interface tables and resend tables ready for the next days processing.

Change

Do not perform any actions on the following tables:

        TPS_CASH_ACCOUNTS_pp
        TPS_CASH_ACCOUNTS_ARC

where  pp is the partition number

### 3.7.2.1.34.7.2.1.3    Cash Account Processing Modules

Function

The following modules are all concerned with processing Cash Account data:

| | |
|---|---|
| TPSC238 | Resend corrected CAC & STK files |
| TPSC251 | CA Control Reconciliation |
| TPSC252 | Counter reported CA Reconciliation Errors |
| TPSC255 | Create TPS_CA_LINE_COMAPARISONS table |
| TPSC256 | CA Line Comparison Report |
| TPSC265 | TPS CAC Transaction Processing |

Change

The modules should be active if system parameter "S80 MIGRATION POINT" < 40. For all other values, output message saying "Migration Point 40 reached. No action taken"

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### 3.7.34.7.3  Schema

#### 3.7.3.14.7.3.1  Tables to be identified as redundant

The following Cash Account tables should be identified as redundant in documentation:

<u>Cash Account Reference Tables</u>

    FINIANCIAL_YEARS
    ACCOUNTING_WEEKS
    CASH_ACCOUNT
    C_A_CODES
    C_A_TABLES
    C_A_SUB_TABLES
    C_A_LINE_CODES
    C_A_TABLE_LINES
    C_A_NODES
    DEN_FINANCIAL_YEAR_C_A_VERSION
    DEN_PRODUCT_CAC_MAPPING
    DEN_CAC_PARENT_CAC_MAPPING
    PROD_TRANS_MODE_CODES

All above tables are populated by TPSC207

<u>Re-conciliation tables</u>

    TMS_OUTLET_IN_PARTITION
    TPS_BAL_DUE_TO_POST_OFF
    TPS_CASH_ACCOUNTS_<p>
    TPS_CASH_ACCOUNTS_ARC
    TPS_CA_LINES_TO_COMPARE
    TPS_CA_LINE_COMPARISONS
    TPS_CA_TOTAL_LINES
    TPS_CA_TOTAL_LINES_ARC
    TPS_C_A_TABLE_MAPPING_RULE
    TPS_RX_CA_COMPLETION_EVENTS
    TPS_RX_CA_COMPLETION_EVENTS
    TPS_SH_TOTAL_LINES
    TPS_SH_TOTAL_LINES_ARC

<u>Re-send tables</u>

    TPS_RX_CAC_RESEND_A & _B———
    TPS_RX_STX_RESEND_A & _B

<u>Harvester Tables</u>

    TMS_RX_CASH_ACCOUNTS_<p><s>
    TMS_RX_CA_CT_EXCEPTIONS
    TMS_RX_CA_CT_EXCEPTIONS_ARC
    TMS_RX_CA_LINE_COMPARISONS
    TMS_RX_CA_TOTAL_LINES
    TMS_RX_CA_TOTAL_LINES_ARC
    TMS_RX_SH_TOTAL_LINES

TMS_RX_SH_TOTAL_LINES_ARC
TMS_RX_STOCK_HOLDINGS_<p><s>

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## 4.5. MIGRATION

### 4.15.1 Overview

The main migration issues are described in a separate migration HLD (MIGRATION). The following diagram, which summarises the main events, is extracted from this document:
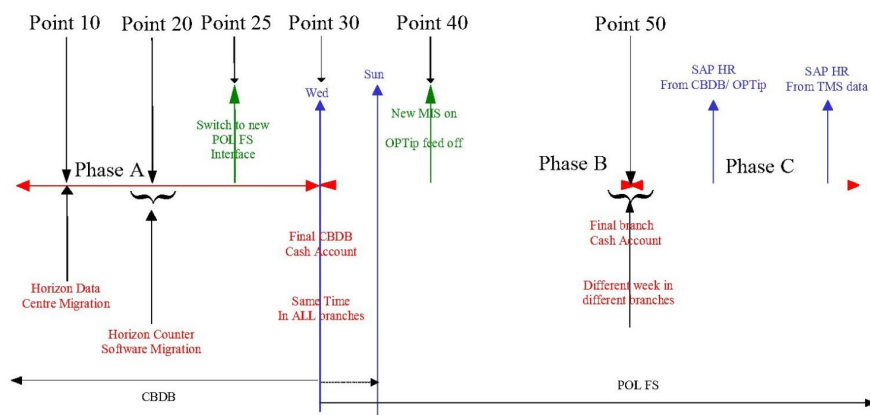


The events, which are relevant to this document, are:

-      Migration Preparation - 5.2

- Point 10    Horizon Data Centre Migration– see 5.3

- Point 25    Start POL FS summarisation – see 5.4

- Point 30    Final CBDB Cash Account  – see 5.5

- Point 40    Switch off feed to TIP and start replacement feeds to POL MIS, FRTS and CTS  – see 5.6

- Phase C    Switch over HR SAP extraction from CBDB to TPS – see 5.7

Further migration details for TPS are included in TPS_POLFS_HLD and TPS_AGENT_HLD

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### 4.~~2~~5.2   Migration Preparation

These actions should be performed during the run-up to the start of the migration proper

**POL actions**:

- allocate filestore to be used for transaction corrections and any error files generated

**Fujitsu actions**:

- mount above filestore so that it can be accessed via an NFS share

### 4.~~3~~5.3   Horizon Data Centre Migration

This is performed at Point 10.

The migration of the data centres is concerned with getting the TPS host boxes and associated systems, in the correct state. As much as the migration as possible, is performed at this point. The following steps are involved:

- migrate RDMC/RDDS – see 5.3.1
- migrate the DWH – see 5.3.2
- install TPS host software – see 5.3.3
- prevent settlement transactions and new events being sent to TIP – see 5.3.3
- enable new Maestro schedules to perform POL FS (Initial summarisation only), HR SAP & Transaction Correction processing – see 5.3.4
- create tablespace – see 5.3.5
- schema migration  – see 5.3.6
- change environment of TPS users e.g. to create new directories and EV's – see 5.3.7
- enable the new FTMS services – see 5.3.8
- install changed TPS Harvester Agent and new TPS Bulk Loader Agent

### 4.3.~~1~~5.3.1   Migrate RDMC/RDDS

All the new tables required for the POL FS and HR SAP summarisation should be created, ready for receiving the new reference data off nRDS (the POL system which feeds RDMC). See AIS_RDDS for description of tables.

Note that the new data may not be available immediately – it will probably filter through during the following days.

This is not a problem for either the HR SAP or Transaction Correction processing since: a) the HR SAP summarisation code includes an initial check that the transaction occurred in a CAP after the identified Final CAP. Therefore all the transactions during this period will be ignored

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b) Transaction Corrections will not be submitted until significantly later (sometime after Point 25 in the Migration)

### 4.3.25.3.2   Migrate the DWH

To cater for a change in the Outward Delivery File generated by TPS (to report on delivery of HR SAP and CTS files), the following change is required:

- Change OUTWARD_DF_DELIVERY_W<nnnyyyy> so fad_code is nullable

Note:  This does not require any change within TPS but will require a change to DWH at Point 10.

### 4.3.35.3.3   Install TPS Host Software

All new/changed software described in this document should be installed in the standard directories.

Note that the following modules have changed:

HR Sap Changes

TPSC211  Start of Day

Will cause a partition of the HR SAP summary table to be created at the beginning of each month.

TPSC210  Harvest Receipt Info

Will look for new acknowledgment files at the gateways. These won't exist yet and therefore the changes will have no impact

TPSC206  Create Delivery File

Will report on delivery of the HR SAP files twice a month. Reference data will determine when the first HR SAP delivery from TPS is performed.  Will have no impact.

TPSC207  Harvest Branch Info from RDDS

Will cause the new HR SAP reference tables to be populated and stop populating redundant Cash Account tables. Note that this is dependant on the successful migration of RDDS.

POL MIS Changes

TPSC201  Produce TIP Files

Will suppress settlement transactions and the new events being sent to TIP. Note that the suppression of settlement transactions is being performed using a new field, transfer_txn_to_mis, which is being added to PRODUCT_HISTORIES. We are dependant are not receiving any such transactions until the field has been populated in RDDS i.e. the field must be populated in advance of such transactions being sent to TPS.

The new events will not start turning up until the counters are migrated (Point 20), but might as well get the code in place ready.

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TPSC229  Strip out errored Sub-files & return rest of file to TIP

TPSC240  Load corrected 'errored Sub-files' into TPS

~~TPSC240  Load corrected 'errored Sub-files' into TPS~~

TPSC232  Create TIP OTX Resend File

> All above are being changed to cater for inclusion of extra transaction data in additional_data field and increase in length of Quantity field.

> Will have no impact, since includes a check on the migration point.

Bureau Changes

TPSC271  Generate Bureau Feed

> Will have no impact, since the initial value of $FRTS_OUTPUT will be the same as $TIP_OUTPUT

CTS Changes

TPSC223  Create CTS File

> Will have no impact, since the initial value of $CTS_OUTPUT will be the same as $TIP_OUTPUT

Removal of Cash Account Processing Changes

TPSC225  Create TIP CAC/STX files

Will suppress cash accounts > "final cash account"
Becomes inactive at Point 40

TPSC209  Drop temporary tables and swap A and B sets of TMS tables

> Will stop processing the "cash account tables"

| | |
|---|---|
| TPSC238 | Resend corrected CAC & STK files |
| TPSC251 | CA Control Reconciliation |
| TPSC252 | Counter reported CA Reconciliation Errors |
| TPSC255 | Create TPS_CA_LINE_COMAPARISONS table |
| TPSC256 | CA Line Comparison Report |
| TPSC269 | Offices with Over due CA |

> All above will become inactive at Point 40

### 4.3.45.3.4   Enable new Maestro Schedules

Enable the new Maestro Schedule.

Note that there is **only one update to the schedule** and therefore if modules require to either become active or inactive at certain points in the schedule, then this is handled within the code. For example, TPSC201 remains active until Point 40 – after that point it is inactive

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### 4.3.55.3.5   Create Tablespace

The following tablespace is required for the new fact data

TPS_FACT_DATA

### 4.3.65.3.6   Schema Migration

The schema migration is concerned with creating/changing tables and populating new tables where required.

A patch is required to:

#### 4.3.6.15.3.6.1  Create new tables

They are either created on existing tablespace TPS_REF_DATA or new tablespace TPS_FACT_DATA as identified:

a) HR SAP

| | |
|---|---|
| TPS_HR_SAP_CTT_NUMBERS | on TPS_REF_DATA |
| TPS_HR_SAP_DEF_PERIODS | on TPS_REF_DATA |
| TPS_HR_SAP_MAPPINGS | on TPS_REF_DATA |
| TPS_HR_SAP_SCHEDULES | on TPS_REF_DATA |
| TPS_HR_SAP_DAILY_SUMMARIES | on TPS_FACT_DATA |
| TPS_HR_SAP_MONTHLY_SUMMARIES | on TPS_FACT_DATA |
| TPS_HR_SAP_SUMMARIES | on TPS_FACT_DATA |

This table is partitioned.
Initially just 2 partitions are created by the migration script, for periods 200501 and 200502. Note that these will not have any transactions stored in them as this is well before the expected Point 30. Therefore, the required CREATE TABLE is :

```
CREATE TABLE tps_hr_sap_summaries (
    ....
)
PARTITION BY RANGE   (target_period_id)
SUBPARTITION BY HASH (group_id) SUBPARTITIONS 64
(
    PARTITION tps_hr_sap_summaries_200501 VALUES LESS THAN (200502) TABLESPACE
        tps_fact_data,
    PARTITION tps_hr_sap_summaries_200502 VALUES LESS THAN (200503) TABLESPACE
        tps_fact_data)
);
```

A new partition is created by TPSC211, when TPS_HR_SAP_DEF_PERIODS has been populated AND the current date falls within the date range of one of the periods. The following month the 4th partition is created by TPSC211.

b)Transaction Corrections

| | |
|---|---|
| TPS_TRANS_MODE_CONVERSIONS | on TPS_REF_DATA |
| TMS_AWT_TPS_TC_DETAIL | on TPS_FACT_DATA |
| TMS_TX_TPS_TC_DETAIL | on TPS_FACT_DATA |
| TMS_EXCPTNS | on TPS_FACT_DATA |
| TPS_TC_ERROR_CODES | on TPS_REF_DATA |

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| | |
|---|---|
| TPS_TC_FILE_DETAIL | on TPS_FACT_DATA |
| TPS_TC_MODES_MAPPING | on TPS_REF_DATA |
| TPS_TC_RECEIVED | on TPS_FACT_DATA |
| TPS_TC_DETAIL | on TPS_FACT_DATA |
| TPS_TC_ERRORS | on TPS_FACT_DATA |

c) POL MIS feed

| | |
|---|---|
| TPS_TIP_EXCLUDED_PRODUCTS | on TPS_REF_DATA |

### ~~4.3.6.2~~5.3.6.2  Create new sequences

Create the following sequences for use by the loader agent.

All sequences require synonyms of the same name.

- TMS_SCHEDULE_SEQ
  i.e. CREATE SEQUENCE TMS_SCHEDULE_SEQ MAXVALUE 99999 MINVALUE 1 CYCLE
  Associate sequence with column TMS_AWT_TPS_TC_DETAIL.schedule_id

- TMS_SEQ_AWT_TPS_TC_DETAIL
  Note that size and other attributes of the sequence do not matter as the agents software drops and re-creates the sequence every time an agent schedule is run
  Associate sequence with column TMS_AWT_TPS_TC_DETAIL.chunk_seq_no

- TMS_SEQ_EXCPTNS
  i.e. CREATE SEQUENCE TMS_SEQ_EXCPTNS MINVALUE 1;
  Associate sequence with column TMS_EXCPTNS.excptn_seq

### ~~4.3.6.3~~5.3.6.3  Change definition of existing tables

TMS_RX_EPOSS_EVENTS
The existing data must be retained
The new fields, **adjustment_amount** , **txn_correction_count** and **trading_period**
should be set to NULL Note that the **event_id** field is being changed to NUMBER(10)
The affected tables are:
           TMS_RX_EPOSS_EVENTS_ppx
               where  pp= 1 to 64
                    x = 'A' and 'B'
           TMS_RX_EPOSS_EVENTS_65
           TMS_RX_EPOSS_EVENTS_65RC
TPS_FILE_REGISTER
The existing data must be retained.
All new fields should be defaulted to NULL.
Change Allowable Values of **file_type** field to be 'M', 'T', 'C' ,'F' and 'S'
TPS_OUTLETS
The existing data must be retained.
The new fields, **office_status** and **hr_sap_group** should be set to 0 & NULL
respectively – they will be replaced by the correct values as soon as it is
available in RDDS
TPS_RX_OTX_RESEND_A
TPS_RX_OTX_RESEND_B

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The existing data must be retained
Change
a) length of **additional_data** field to accommodate the extra transaction data being held for DCS and NWB transactions by increasing its length to VARCHAR2(182)
b) length of **quantity** field to NUMBER(14)

PRODUCT_HISTORIES
The existing data must be retained.
The new fields should be set to NULL - they will be replaced by the correct values as soon as it is available in RDDS

### 4.3.6.45.3.6.4 Populate new TPS reference tables

a) Transaction Corrections
TPS_TC_ERROR_CODES
The values are defined in section 4.3.2.2
TPS_TC_ MODES_MAPPING
The values are defined in document AIS_POLFS (Appendix 7)
b) POL MIS feed
TPS_TIP_EXCLUDED_PRODUCTS
The values are to be supplied by POL prior to the migration

### 4.3.6.55.3.6.5 Truncate redundant Cash Account tables

The following tables require truncating:

FINIANCIAL_YEARS
ACCOUNTING_WEEKS
CASH_ACCOUNT
C_A_CODES
C_A_TABLES
C_A_SUB_TABLES
C_A_LINE_CODES
C_A_TABLE_LINES
C_A_NODES
DEN_FINANCIAL_YEAR_C_A_VERSION
DEN_PRODUCT_CAC_MAPPING
DEN_CAC_PARENT_CAC_MAPPING
PROD_TRANS_MODE_CODES
TPS_CASH_ACCOUNTS_pp            (where pp= 1 to 64)
TPS_CASH_ACCOUNTS_ARC

### 4.3.6.65.3.6.6 Update metadata

a) Add new parameters to TPS_SYSTEM_PARAMETERS
Note that the "sequence" and "final cbdb cap" parameters are just given default initial values. The actual values must be provided by POL, and captured in the table before Point 30.

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b)Add entries to TPS_PROCESSES for all new processes
specify values:

| process_name |
|---|
| TPSC280 |
| TPSC281 |
| TPSC282 |
| TPSX283.sh |
| TPSC284 |
| TPSC285 |
| TPSC286 |
| TPSC287 |

c) Add entry to TPS_ARCHIVED_TABLES to identify new tables to be included in the standard table housekeeping performed by TPSC212

specify values:

| application_alias | table_alias | tablename | tsmp_column_name | archive_type | |
|---|---|---|---|---|---|
| TPS | TFD | TPS_TC_FILE_DETAIL | receive_date | RP | |
| TPS | TR | TPS_TC_RECEIVED | receive_date | RP | |

| purge_after_archive | directory | retention_period | archive_threshold | additional_criteria |
|---|---|---|---|---|
| Y | /bvnw01/tps/tpsarch | 365 | null | null |
| Y | /bvnw01/tps/tpsarch | 50 | null | null |

d) Add entries to TPS_FILES_TO_HOUSEKEEP to identify new file types to be included in the standard filestore housekeeping performed by TPSHouseKeep.sh

specify values:

| directory_name | file_id | retention_period | delete_subdir |
|---|---|---|---|
| /bvnw01/tps/trans/polmis | *.pz.arc | 4 | N |
| /bvnw01/tps/trans/polmis | *.tpr | 4 | N |
| /bvnw01/tps/trans/polmis | * | 35 | N |
| /bvnw01/tps/trans/hrsap | * | 30 | N |
| /bvnw01/tps/trans/cts | * | 4 | N |
| /bvnw01/tps/trans/frts | * | 4 | N |
| /bvnw01/tps/trans/polfs_input | * | 4 | N |

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### 4.3.6.75.3.6.7  Change Role Definition

The following roles already existing in the TPS database. They require the identified object privileges adding:

| Role Name | Objects | Privileges Required |
|---|---|---|
| BSU | All new tables (see  5.3.6.1) | SELECT |
| MONITORS | All new tables | SELECT |
| TPS_BATCH | All new tables | SELECT, UPDATE, INSERT, DELETE |
| TPS_AGENTS | TMS_TX_TPS_TC_DETAIL<br>TMS_AWT_TPS_TC_DETAIL<br>TMS_EXCPTNS | SELECT, UPDATE<br>SELECT, UPDATE, INSERT, DELETE<br>SELECT, UPDATE, INSERT, DELETE |

### 4.3.6.85.3.6.8  Create User

A new user, TPS_LOADER_AGENT, with Role=TPS_AGENTS, is required for the new loader agent.

### 4.3.6.95.3.6.9  Check Constraints

The following constraints should be changed. Note that some further constraints are changed at Point 40 (see 5.6)

1) Extend the following Check Constraint

Transaction_Mode_Id in
(1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14,15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28)

to include new modes (29,30,31,32,33,34).

This change affects the following transaction tables:

      TMS_RX_ttt_TRANSACTIONS_ppx
      TMS_RX_ttt_TRANSACTIONS_65
      TMS_RX_ttt_TRANSACTIONS_RC

where  ttt = APS, BDC, EFT, EPOSS, NWB and OBCS
      pp = 1 to 64
      x = A and B
This change affects all Transaction tables
2) Add new Check Constraint

"TRADING_DATE" is not null

This change affects the following transaction and event tables:

      TMS_RX_ttt_TRANSACTIONS_ppx
      TMS_RX_ttt_TRANSACTIONS_65
      TMS_RX_ttt_TRANSACTIONS_RC

      TMS_RX_EPOSS_EVENTS_ppx
      TMS_RX_EPOSS_EVENTS_65
      TMS_RX_EPOSS_EVENTS_RC

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            TMS_RX_OBCS_STATUSES_ppx
            TMS_RX_OBCS_STATUSES_65
            TMS_RX_OBCS_STATUSES_RC


            TPS_RX_OTX_RESEND_x

where  ttt = APS, BDC, EFT, EPOSS, NWB and OBCS
            pp = 1 to 64
            x = A and B~~This change affects all Transaction and Event tables.~~

## 4.3.75.3.7   Change environment of TPS Users

### 4.3.7.15.3.7.1  Create Host Directories

New directories are required on the TPS host to support the extra FTMS services described in 4.1.1.1

       /bvnw01/tps/trans/polmis
       /bvnw01/tps/trans/cts
       /bvnw01/tps/trans/frts
       /bvnw01/tps/trans/hrsap

New directories are required on the TPS host for Transaction Corrections.

       /bvnw01/tps/trans/polfs_input

A new directory is required on the POLFS host for Transaction Corrections. Note that it is created in the share created in 5.2

       /bvnw01/tps/trans/polfs_input_share


### 4.3.7.25.3.7.2  Environment Variables

The following EV's need to be created in all users on the host system, which run the TPS schedule:

| Variable | Value |
|---|---|
| CTS_OUTPUT | /bvnw01/tps/trans/tip        # see below |
| FRTS_OUTPUT | /bvnw01/tps/trans/tip        # see below |
| HRSAP_OUTPUT | /bvnw01/tps/trans/hrsap |
| POLFS_INPUT | /bvnw01/tps/trans/polfs_input |
| POLFS_INPUT_SHARE | /bvnw01/tps/trans/polfs_input_share |


**NB:**    **CTS_OUTPUT and ~~FTRS~~FRTS_OUTPUT must be set to same value as $TIP_OUTPUT initially, since TIP is still carrying on with normal processing at this stage, and will continue doing to until Point 40. Also, at this point, the existing EV, $TIP_OUTPUT, will be re-assigned to point to the …/polmis directory.**

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### 4.3.85.3.8　Enable the new FTMS services

This will have no impact at this stage, since all files will continue to be output to the old "tip" directory, and therefore be transferred from it, until the relevant EV's are re-assigned at Point 40.

## 4.45.4　Start POL FS summarisation

This is performed at Point 25.

At this stage, the new POL FS interface is made available. It should coincide with the commencement of the POLFS summarisation.

Details are defined in TPS_POLFS_HLD.

## 4.55.5　Final CBDB Cash Account

This is performed at Point 30.

It is the point at which the final Cash Account is generated for a branch. The number of the final Cash Account for all branches will be the same. However, the generation of this Cash Account will occur at different points in time, although the majority will be generated over several elapsed days.

Once the number of the final CAP has been confirmed, check the following parameters in TPS_SYSTEM_PARAMETERS, and if necessary adjust them
    FINAL CBDB CAP
    PIVOT FILE SEQ
    PIVOT2 FILE SEQ

## 4.65.6　Switch off feed to TIP and start replacement feeds

This is performed at Point 40

Between Points 30 and 40, there will still be cash account information coming from some branches (following non-polling), which will need to be sent to CBDB. The CAC & STX feed to TIP will contain only those branches, which have not produced their final CBDB Cash Account (any cash account data post the final Cash Account will have been suppressed by a new version of process TPSC225 introduced at Point 10)

Therefore the interface to TIP needs to maintained during this period i.e. TIP will continue to process all the txn files as well as the FRTS and CTS feed files.

Once all Final Cash Accounts have been sent through, it is then possible to:

a) switch off the feed to TIP
b) start new feed to POLMIS
c) stop processing all Cash Account and Stock Holding data
d) relax some of the constraints on the TPS Harvester interface tables

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Note that a), b) and c) are all performed automatically at this point by the code, and therefore no changes to the maestro schedule are required.

The completion of final cash accounts will be monitored from OpTIP data.

**Fujitsu actions**:

1) change the following EVs to their final values, so that the 3 sets of files are output to different directories, instead of …/tip as was the case up to Point 40.

| | |
|---|---|
| TIP_OUTPUT | = /bvnw01/tps/trans/polmis |
| FRTS_OUTPUT | = /bvnw01/tps/trans/frts |
| CTS_OUTPUT | = /bvnw01/tps/trans/cts |

2) execute script to remove the following constraints on harvester tables

"BALANCE_PERIOD" is not null
balance_period >= 0
"CASH_ACCOUNT_PERIOD" is not null
cash_account_period >= 0

This change will affects all the followingT transaction tables:

      TMS_RX_ttt_TRANSACTIONS_ppx
      TMS_RX_ttt_TRANSACTIONS_65
      TMS_RX_ttt_TRANSACTIONS_RC

where ttt = APS, BDC, EFT, EPOSS, NWB and OBCS
      pp = 1 to 64
      x = A and B

Therefore, for each transaction type, there are 130 tables affected
.

**POL actions**:

1) disable TIP

2) change the processes which access the POLMIS, FRTS and CTS files to accept the files from the new locations

3) commence the generation of transaction corrections

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### 5.7

### 5.7   Switch over HR SAP extraction from CBDB to TPS

This is complicated somewhat by the current situation whereby there are 2 levels of deferment applicable to transactions, which are included in the 2 files delivered to HR SAP each month.

Allowance must be made for completing the "final cash account period" during the day. In all cases, transactions, which occur before the final CAP, must be sent to CBDB and those after the final CAP must be summarised for sending to POL FS and HR SAP. The exact time varies from branch to branch and therefore the initial summarisation table, TPS_PROD_MODE_SUMMARIES, identifies the cash account period, which the transactions are included in. This enables the HR SAP summarisation to exclude all transactions which will have been sent to CBDB and so there will be a clean switch over for all branches.

For example, consider the following:
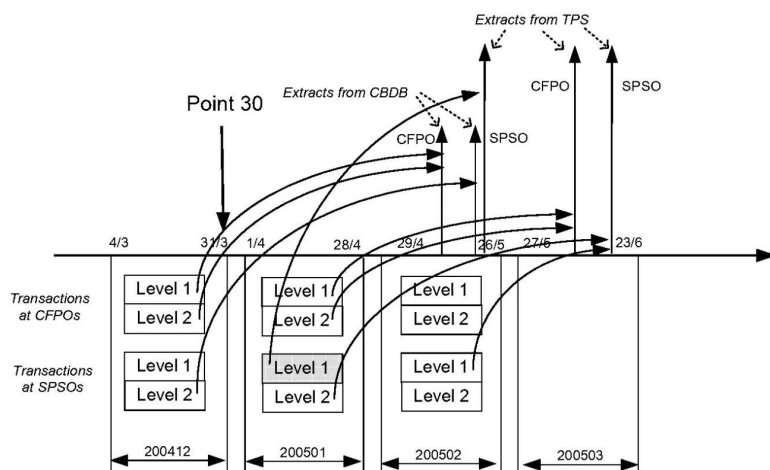


All transactions before Point 30, will be passed to CBDB, for subsequent inclusion in HR SAP extracts. All transactions after Point 30, will be summarised by TPS, which will subsequently generate the HR SAP extracts.

The penultimate extract from CBDB (during period 200501 in above diagram) will be a complete extract. To keep it simpler, this is not shown in the diagram.

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The final extract from CBDB (during period 200502) will NOT be a complete extract, since the Level 1 transactions from SPSOs (identified above) will not have been passed to CBDB.

Therefore the complete HR SAP feed for this period comprises:

CFPO extract from CBDB, consisting of all transactions from period 200412
SPSO extract from CBDB, consisting of Level 2 transactions from period 200412
SPSO extract from TPS, consisting of Level 1 transactions from period 200501

Note that the two SPSO extracts will have the same sequence numbers (i.e. filenames), but will be output to different directories as controlled by CBDB and TPS. **It is POL's responsibility to handle the merging of this data for HR SAP**.

The next extract, and all future ones, will be from the new HR SAP summarisation table in TPS, with the date being controlled by RDDS/TPS reference data.

The first such extract comprises:

CFPO extract from TPS, consisting of all transactions from period 200501
SPSO extract consisting of     Level 1 transaction from period 200502
                               Level 2 transactions from period 200501

Note that:

1. The switching on of all the new processes at Point 10 will cause HR SAP extraction process to be run from this point. If the reference data in TPS_HR_SAP_SCHEDULES is such that no deliveries are due in the first few periods, then none will be attempted. Even if the extracts were done, the files generated would be empty, since the transactions will not have been summarised into TPS_HR_SAP_SUMMARIES.

2. Need to allow for the fact that a branch may roll Point 30 early, so the calendar must ensure that all transactions with a CAP greater than the Final CAP that occurred before that period, are included. This can be achieved by adjusting the start date of that period to be say a week earlier.

3. No credence should be read into Point 30 in above example being at the end of period 200512 – all that is required is that it coincides with a month/period end.

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## ~~5.~~6.  APPENDIX 1: Database Schema

Note that alteration to Check Constraints is defined in Sections 5.3.6.9 and 5.6

### ~~5.1~~6.1     Fact Tables

#### ~~5.1.1~~6.1.1   HR SAP Tables

| Tablename | TPS_HR_SAP_DAILY_SUMMARIES |
|---|---|

This is an intermediate summary table, which is populated with HR SAP summaries for transactions harvested in the current daily run. The majority of the transactions will be for the same day, but they could also include some late harvested transactions from earlier days.

The source data is the initial summary table, TPS_PROD_MODE_SUMMARIES.

It contains a row for every period/branch/CTT number for which there were transactions in the current run.  It is used to update table TPS_HR_SAP_SUMMARIES

It is truncated at the beginning of the process which populates it and therefore the data for the previous run is available until the start of the next run.

| Column | Type | Null | Description |
|---|---|---|---|
| target_period_id | Number(6) | N | The HR SAP Period into which the data will be included when the file is generated. Format is yyyymm. |
| group_id | Number(6) | N | A unique identifier that identifies a branch. This attribute corresponds to the FAD Code. |
| hr_sap_group | Varchar2(10) | N | The HR SAP Group, which the branch identified in the source table, maps to. |
| ctt_number | Varchar2(10) | N | The CTT number which the product/mode identified in the source table maps to. |
| accounting_sense | Varchar2(1) | N | The accounting sense of the product/mode, derived from PRODUCT_TRANS_MODE_HISTORIES – either "+" or "-" |
| quantity | Number(14) | N | Number of items transacted |
| amount | Number(13,2) | N | Value of items transacted in £ (sterling) |
| txn_count | Number(5) | N | Number of transactions. |
| update_row | Varchar2(1) | N | Identifies whether the current row is to be used to update an existing row or insert a new row in the target table.<br>= Y<br>= N |

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| Tablename | TPS_HR_SAP_MONTHLY_SUMMARIES |
|---|---|

This is an intermediate summary table, which is populated when the monthly HR SAP file for an HR SAP Group/Period is being created.

The source data is table, TPS_HR_SAP_SUMMARIES.

It contains a row for every branch/CTT number for the current HR SAP Group and Period and it is used to create the HR SAP file for the that group and period.

It is truncated at the beginning of the process which populates it and therefore the data for the previous run is available until the start of the next run which is going to create an extract. Since an HR SAP extract is only created every few weeks, this means that the data for a run remains in this table for a few weeks.

| Column | Type | Null | Description |
|---|---|---|---|
| group_id | Number(6) | N | A unique identifier that identifies a branch. This attribute corresponds to the FAD Code. |
| ctt_number | Varchar2(10) | N | The CTT number |
| quantity | Number(14) | N | Either identifies the total number of items transacted or the total number of transactions, depending on reference data for the current CTT. |
| amount | Number(13,2) | N | Total of value of items transacted in £ (sterling) |

| Tablename | TPS_HR_SAP_SUMMARIES |
|---|---|

This is a summary table which is updated by module TPSC280 from data in the intermediate summary table TPS_HR_SAP_DAILY_SUMMARIES.

It contains a row for every target period id/branch/CTT number and is used to generate the feed file to HR SAP twice a month – once for each HR SAP Group.

The table normally contains data for 4 periods - the current 2 (allowing for 2 levels of deferment) and the previous 2 (allowing for receipt of late transactions).

This table is partitioned, as described in 4.2.3.1

| Column | Type | Null | Description |
|---|---|---|---|
| target_period_id | Number(6) | N | The HR SAP Period into which the data will be included when the file is generated. |

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| | | | Format is yyyymm. |
|---|---|---|---|
| group_id | Number(6) | N | A unique identifier that identifies a branch. This attribute corresponds to the FAD Code. |
| hr_sap_group | Varchar2(10) | N | The HR SAP Group, which the branch identified in the source table, maps to. |
| ctt_number | Varchar2(10) | N | The CTT number which the product/mode identified in the source table maps to. |
| quantity | Number(14) | N | Number of items transacted |
| amount | Number(13,2) | N | Value of items transacted in £ (sterling) |
| txn_count | Number(5) | N | Number of transactions. |
| last_updated_system _date | Date | N | Business Day when this row was last updated or created (if it is a newly inserted row). In the case of late transactions, which are missed out of their intended delivery file, this allows one to determine exactly how late the data was. |
| late_flag | Varchar2(1) | N | Identifies whether the data has been delivered late to POL i.e. after the delivery date defined in reference data = N = Y |
| delivered_period_id | Number(6) | Y | Identifies the HR SAP period in which the data was delivered. For all data delivered on time, this will be the same as the target_period_id. = null      Not delivered = yyyymm      HR SAP Period ID |

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| Tablename | TPS_PROD_MODE_SUMMARIES |
|---|---|

This is an overall view on all the TPS_PROD_MODE_SUMMARIES_xxxx tables. The tables contain the initial summaries and are populated from data in the individual transaction tables TMS_RX_<nnn>_TRANSACTIONS_xxxx.

The base tables contain a row for every CAP/trading date/branch/product/mode combination that has been harvested by the TPS EOD harvester today. The majority of data will be for a single trading date, but it is liable to include some data from previous days due to late receipt of data from a branch.

The data is used by the processes performing the POL FS summarisation (described in TPS_POLFS_HLD) and the HR SAP summarisation (described in this document)

**Note that the complete definition of this table, together with the process to populate it, is described in TPS_POLFS_HLD**

| Column | Type | Null | Description |
|---|---|---|---|
| cash_account_period | | | The cash account period, which the transactions are included in.<br><br>This is only set/used during the migration to ensure that there is a clean switch over between CBDB and POL FS/HR SAP, with no transactions either being missed out or double counted.<br><br>After the migration it will be null. |
| trading_date | | | The trading date |
| group_id | | | A unique identifier that identifies a branch. This attribute corresponds to the FAD Code. |
| prod_id | | | The product identifier |
| transaction_mode_id | | | The transaction mode identifier |
| total_transaction_quantity | | | Sum of the quantity field in the source tables i.e. number of items transacted. |
| total_transaction_amount | | | Sum of the amount field in the source tables in £ (sterling). |
| total_transaction_count | | | Sum of the number of transactions. |
| account_reference_id | | | |
| client_reference_id | | | |
| insert_date | | | |

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## 5.1.26.1.2   Transaction Correction Tables

| Tablename | TMS_AWT_TPS_TC_DETAIL | | |
|---|---|---|---|
| This table is used by the txn correction Bulk Loader Agent to multistream it's process, allowing multiple instances of the Agent to load sets of branch data in parallel. **Note that the full definition of this table is in** GEN_AGENT_SPE | | | |
| Column | Type | Null | Description |
| chunk_seq_no | Number(10) | N | |
| start_seq_no | Varchar2(7) | Y | |
| end_seq_no | Varchar2(7) | Y | |
| status | Varchar2(1) | N | |
| computername | Varchar2(15) | Y | |
| instance_id | Varchar2(3) | Y | |
| progress_timestamp | Date | Y | |
| processed_po_no | Varchar2(7) | Y | |
| processed_aux_seq | Varchar2(20) | Y | |
| eod_date | Date | Y | |
| schedule_id | Number(5) | Y | |

| Tablename | TMS_EXCPTNS | | |
|---|---|---|---|
| This table is used by the txn correction Bulk Loader Agent to log exceptions **Note that the full definition of this table is in** GEN_AGENT_SPE | | | |
| Column | Type | Null | Description |
| module_id | Varchar2(12) | N | |
| excptn_seq | Number(16) | N | |
| timestamp | Date | N | |
| excptn_code | Number(6) | N | |
| source | Varchar2(10) | Y | |
| excptn_detail | Varchar2(800) | Y | |
| file_service_id | Varchar2(5) | Y | |

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| file_seq_no | Number(4) | Y | |
|---|---|---|---|
| file_type | Number(3) | Y | |
| module_version | Varchar2(12) | Y | |

| Tablename | TMS_TX_TPS_TC_DETAIL |
|---|---|

This is the interface table for the Txn Correction Bulk Loader Agent.

It contains a row for every transaction correction, which requires a message sending to Riposte. Where applicable, the mapping from field to message attribute is identified.

The table is populated by module TPSC284.

| Column | Type | Null | Description |
|---|---|---|---|
| group_id | Number(6) | N | A unique identifier that identifies a branch. |
| sap_reference_id | Varchar2(18) | N | Identifies the SAP Reference ID<br><br>Attribute = **Data.Ref** |
| iteration_flag | Varchar2(1) | N | Single character id to inform Horizon the status of the "evidence" collection. When concatenated with sap_reference_id it forms a unique Horizon Reference ID for the transaction correction.<br><br>Attribute = **Data.Iter** |
| article | Number(10) | N | Identifies the Horizon Product corresponding to the SAP Article Number in the article field in table TPS_TC_DETAIL<br><br>Attribute = **Data.Article** |
| instruction | Number(10) | N | Identifies the Horizon Product corresponding to the instruction field in table TPS_TC_DETAIL<br><br>Attribute = **Data.Instruction** |
| accounting_sense | Varchar2(5) | N | Mapped from label_id field in table TPS_TC_DETAIL<br><br>Attribute = **Data.AccountingSense** |
| value | Number(11,2) | N | Value of Transaction Correction in pounds and pence<br><br>Attribute = **Data.Value** |

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| quantity | Number(5) | N | Quantity relating to Transaction Correction<br>Attribute = **Data.Qty** |
|---|---|---|---|
| allowed_modes | Number(2) | N | A 2-digit number which identifies the set of modes, which are available to the counter staff on processing.<br>Attribute = **Data.AllowedModes** |
| mode_1 | Varchar2(2) | N | The 1$^{st}$ of the modes corresponding to the specified allowed modes field.<br>Attribute = **Data.Modes.1** |
| mode_2 | Varchar2(2) | Y | The 2$^{nd}$ of the modes corresponding to the specified allowed modes field.<br>= null  allowed_modes identified just maps to 1 mode<br>Attribute = **Data.Modes.2** |
| mode_3 | Varchar2(2) | Y | The 3$^{rd}$ of the modes corresponding to the specified allowed modes field.<br>= null  allowed_modes identified just maps to 1 or 2 modes<br>Attribute = **Data.Modes.3** |
| message | Varchar2(500) | Y | Contains extra instructions to the Branch to identify the impact of applying the correction.<br>Attribute = **Data.Text** |
| client_reference_id | Varchar2(16) | Y | Reference number of the client<br>Attribute = **Data.ClientRef** |
| processed_tsmp | Date | Y | Date/Time when the Message was created. Set by the Loader Agent when it has loaded the record into Riposte |
| actioned_ind | Varchar2(1) | Y | Status of the row with regards to it's processing by the Loader Agent<br>= N    New (Not Processed)<br>= null  Processed Ok by Agent<br>= F    Processing by Agent Failed |

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| Tablename | TPS_TC_RECEIVED | | |
|---|---|---|---|

This table contains a list of all **valid** transaction corrections received and is used to check for duplicate corrections being received by TPS i.e. same sap_reference_id AND iteration_flag.

Old entries are deleted by the standard housekeeping process after 50 days i.e. number of days which the correction can exist in the message store waiting to be processed at the counter.

The table is populated by TPSC284.

| Column | Type | Null | Description |
|---|---|---|---|
| sap_reference_id | Varchar2(18) | N | Identifies the SAP Reference ID |
| iteration_flag | Varchar2(1) | N | Single character id to inform Horizon the status of the "evidence" collection. |
| receive_date | Date | N | Date when the transaction correction was received. |

| Tablename | TPS_TC_DETAIL | | |
|---|---|---|---|

This table is populated by module TPSX283.sh from a single file created during the txn correction pre-processing stage. It is truncated at the beginning of this module.

It contains a row for every Transaction Correction detail line (i.e. excluding headers and trailers) in the txn correction files, which were pre-processed in the current run.

The table is used by module TPSC284 to populate table TMS_TX_TPS_TC_DETAIL with the completed Transaction Correction record.

| Column | Type | Null | Description |
|---|---|---|---|
| file_name | Varchar2(30) | N | Identifies the terminal name of the file, which contained the Transaction Correction.<br><br>e.g. if20040608001.tcn |
| record_number | Number(5) | N | The record number in the file. Count starts at 001 i.e. it includes the Header Record |
| label_id | Varchar2(5) | N | The detail record type<br><br>= TCINV    Agent is debited<br>= TCCRM    Agent is credited |
| group_id | Number(6) | N | A unique identifier that identifies a branch. |
| article | Varchar2(10) | N | Identifies the SAP Article Number – this |

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| | | | generates part of the adjustment posting. It is mapped to a Horizon Product |
|---|---|---|---|
| value | Number(11) | N | Value of Transaction Correction in pence |
| quantity | Number(5) | N | Quantity relating to Transaction Correction |
| instruction | Varchar2(10) | N | The Article Number of the second product to be adjusted.  It is mapped to a Horizon Product. |
| iteration_flag | Varchar2(1) | N | Single character id to inform Horizon the status of the "evidence" collection. When concatenated with sap_reference_id it forms a unique Horizon Reference ID for the transaction correction.<br><br>= N    New txn correction<br>= E    Evidence provided |
| allowed_modes | Number(2) | N | A 2-digit number which identifies the set of modes, which are available to the counter staff on processing. It is mapped to the actual modes using reference data. |
| sap_reference_id | Varchar2(18) | N | Identifies the SAP Reference ID |
| client_reference_id | Varchar2(16) | Y | Reference number of the client |
| message | Varchar2(500) | Y | Contains extra instructions to the Branch to identify the impact of applying the correction. |

| Tablename | TPS_TC_ERRORS |
|---|---|

This table contains details of all the errors detected during either the pre-processing stage (by module TPSC282) or during the loading of the agent interface table TMS_TX_TPS_TC_DETAIL (by module TPSC284).

It contains a row for every error detected. The number of errors detected may be greater than the number of rows containing errors i.e. if some rows have >1 error.

It is used by module TPSC285 to create the error file(s) for passing back to POL.

It is truncated at the start of the Transaction Correction schedule (by module TPSC282).

| Column | Type | Null | Description |
|---|---|---|---|
| file_name | Varchar2(30) | N | Identifies the terminal name of the file which contained the Transaction Correction which is in error |

|  |  |  | e.g. if20040608001.tcn |
|---|---|---|---|
| error_code | Number(3) | N | Unique Error code which identifies the type of error. This is an index into table TPS_TC_ERROR_CODES |
| record_number | Number(5) | Y | The record number in the file that is in error. Count starts at 001 and includes the Header Record = null Error code does not relate to a specific record. |
| field_number | Number(2) | Y | The field number in the record in error. Field numbers start at 01. = null Error code does not relate to a specific field |

### 5.1.36.1.3   Other Tables

| Tablename | TMS_RX_EPOSS_EVENTS |
|---|---|

This is the harvester interface table for events

The following columns are being **added to it**.

| Column | Type | Null | Description |
|---|---|---|---|
| -------------------- |  |  |  |
| event_id | Number(10) | Y | Event id. NB: Type changed from Number(3) |
| -------------------- |  |  |  |
| adjustment_amount | Number(9,2) | Y | Adjustment amount |
| txn_correction_count | Number(5) | Y | Number of transaction corrections |
| trading_period | Number(3) | Y | The trading period. This is only populated for counter events 55,56 & 57 |

| Tables | Change |
|---|---|
| TPS_RX_OTX_RESEND | Increase Additional_Data field to VARCHAR2(182) to accommodate additional transaction data Increase Quantity field to NUMBER(14) |

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## 5.26.2 Reference Tables

### 5.2.16.2.1 HR SAP Tables

| Tablename | TPS_HR_SAP_CTT_NUMBERS | | |
|---|---|---|---|
| This identifies details of all the CTT Numbers, which are required in the HR SAP feed. | | | |
| For each CTT Number it identifies what transaction details are required in the final file and the type of deferment required between the actual transaction and inclusion of the details in an HR SAP feed. | | | |
| *Column* | *Type* | *Null* | *Description* |
| ctt_number | Varchar2(10) | N | The CTT number |
| description | Varchar2(30) | N | Description of the CTT |
| txn_quantity_type | Varchar2(1) | N | = Q  Total of the QUANTITY fields in the initial transactions is required in the file. i.e. the number of items transacted<br><br>= C  Total count of transactions is required i.e. the number of transactions<br><br>= N  No "quantity details" is required |
| deferment_type | Number(1) | N | Identifies the deferment level. Currently this is the number of months delay between the receipt of the transaction and passing the details to HR SAP.<br><br>= 1  1 month deferment<br>= 2  2 months deferment |

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| Tablename | TPS_HR_SAP_DEF_PERIODS | | |
|---|---|---|---|
| Defines the transaction period for each Deferment Type that is included in each HR SAP schedule | | | |
| *Column* | *Type* | *Null* | *Description* |
| hr_sap_group | Varchar2(10) | N | The HR SAP Group that the schedule applies to |
| hr_sap_period_id | Number(6) | N | A unique code to identify the year and month of the HR SAP Group scheduled delivery |
| deferment_type | Number(1) | N | Groups CTT Numbers based on the deferment period between transaction creation and delivery to HR SAP |
| period_start_date | Date | N | The date when an Accounting period commences – this is the start date for the summarisation. |
| period_end_date | Date | N | The date when an Accounting period finishes – this is the end date for the summarisation. |

| Tablename | TPS_HR_SAP_MAPPINGS | | |
|---|---|---|---|
| Defines the mapping of CTT Numbers to product/transaction modes. | | | |
| It contains a row for every product/transaction which has a corresponding CTT number and hence is required in the HR SAP extraction. Lack of a mapping for any pair implies that those transactions are not required by HR SAP. | | | |
| *Column* | *Type* | *Null* | *Description* |
| ctt_number | Varchar2(10) | N | The HR SAP CTT Number |
| prod_id | Number(10) | N | A unique code to identify the product. |
| trans_mode_id | Number(10) | N | A unique code to identify the type of Transaction Mode. |
| start_date | Date | N | Date when effective. |
| end_date | Date | Y | Date when ceases to be effective. |

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| Tablename | TPS_HR_SAP_SCHEDULES | | | |
|---|---|---|---|---|
| Defines the delivery schedule for the feed files to HR SAP. | | | | |
| Column | Type | Null | Description | |
| hr_sap_group | Varchar2(10) | N | The HR SAP Group that the schedule applies to | |
| hr_sap_period_id | Number(6) | N | A unique code to identify the year and month of the HR SAP Group scheduled delivery. Format is YYYYMM | |
| delivery_date | Date | N | The date on which transactions for the schedule period are due to be delivered to HR SAP | |

### 5.2.26.2.2    Transaction Correction Tables

| Tablename | TPS_POL_FS_ARTICLES | | | |
|---|---|---|---|---|
| Defines the POL FS articles and their associated horizon products. | | | | |
| **Note that the full definition of this table will be in TPS_POLFS_HLD** | | | | |
| Column | Type | Null | Description | |
| article_id | Varchar2-(10) | N | | |
| dummy | Varchar2(1) | N | | |
| description | Varchar2(30) | N | | |
| default_prod_pos | Number (10) | Y | | |
| default_prod_neg | Number (10) | Y | | |

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| Tablename | TPS_TC_ERROR_CODES | | |
|-----------|--------------------|--|--|

Defines the Transaction Correction error codes.

These codes identify all the errors, which are explicitly checked for by TPS during the pre-processing of the file (generally header/trailer errors) and during the later processing of the data (i.e. detail errors).

The codes are used by the modules TPSC282 and TPSC284. Therefore any changes to the set of codes could impact either of these modules.

| Column | Type | Null | Description |
|--------|------|------|-------------|
| error_code | Number(3) | N | Identifies the 3 digit error code e.g. 001 |
| description | Varchar2(100) | N | Description of the error e.g. "Invalid Label Identifier". This is included in the error file created. |
| record_type | Varchar2(3) | N | Identifies the type of record, which the error occurred in. This is included in the error file created.<br><br>= THZ       Header record<br>= TDZ       Detail record<br>= TTZ       Trailer record |

| Tablename | TPS_TC_MODES_MAPPING | | |
|-----------|---------------------|--|--|

Defines the mapping between the Allowed Modes ID (as supplied in a Transaction Correction file) and the actual mode, which will be selected at the counter. There will be up to 3 modes associated with each Allowed Modes ID.

| Column | Type | Null | Description |
|--------|------|------|-------------|
| allowed_modes_id | Number(2) | N | Identifies the 2 digit Allowed Modes ID e.g. 11 |
| tc_mode | Varchar2(2) | N | Identifies the actual mode e.g. "MG" |

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### 5.2.~~3~~6.2.3    Other Tables

| Tablename | TPS_TRANS_MODE_CONVERSIONS | | |
|---|---|---|---|

This table contains the mapping between the numeric POL transaction modes and the alphabetic Fujitsu transaction modes.

It is a **new table** in TPS.

| Column | Type | Null | Description |
|---|---|---|---|
| POCL_Trans_ Mode_Type_Code | Number(10) | N | Identifies the numeric transaction mode. |
| Pathway_Trans_ Mode_Type_Code | Varchar2(10) | Y | Identifies the corresponding alphabetic Fujitsu transaction mode. |

| Tablename | TPS_TIP_EXCLUDED_PRODUCTS | | |
|---|---|---|---|

This table contains a list of products, which are to be filtered out of the transaction feed files, which are generated for TIP during the migration. They are the products which correspond to a new group of EPOSS events being introduced at S80.

This table is only required during the migration to S80.

It is a **new table** in TPS.

| Column | Type | Null | Description |
|---|---|---|---|
| prod_id | Number(10) | N | Identifies the product |

| Tablename | TPS_OUTLETS | | |
|---|---|---|---|

This table contains details of all the branches.

The following columns are being **added to it**.

The full definition of this table as in AIS_RDDS

| Column | Type | Null | Description |
|---|---|---|---|
| -------------------- | | | |
| office_status | Number(1) | N | Identifies the status of the branch<br>= 0        Open<br>= 1        Permanently Closed<br>= 2        Temporarily Closed |

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| hr_sap_group | Varchar2(10) | Y | The HR SAP group that the Post Office branch is a member of<br><br>= PIVOT<br>= PIVOT2<br>= null      Branch is a Directly Managed Branch |
|---|---|---|---|
| site_code | Varchar2(4) | Y | Site code for a branch |

| Tablename | PRODUCT_HISTORIES | | |
|---|---|---|---|
| This table contains details of all the products<br>The following columns are being **added to it**.<br>The full definition of this table as in AIS_RDDS | | | |
| *Column* | *Type* | *Null* | *Description* |
| -------------------- | | | |
| adjustment_price | Number(11,3) | Y | Adjustment price in pounds and pence |
| transfer_txn_to_mis | Varchar2(1) | Y | Identifies whether the transaction should be transferred to MIS<br><br>= Y<br>= N |

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## 5.36.3 Control Tables

### 5.3.16.3.1 Transaction Correction Tables

| Tablename | TPS_TC_FILE_DETAIL |
|---|---|

This table contains details of all Transaction Correction files received by TPS, which have valid filenames (as determined by module TPSC282)

Associated with each file are various metrics and flags identifying the results of the file validation. Completion of the processing of the file is also recorded.

Old entries are deleted by the standard housekeeping process after 365 days.

Note that the detail lines of the file are only checked for errors if the header and trailer are valid i.e. the file is successfully *pre-processed*

| Column | Type | Null | Description |
|---|---|---|---|
| file_name | Varchar2(30) | N | Identifies the terminal name of the file e.g. if20040608001.tcn |
| receive_date | Date | N | Date when the transaction correction file was received. |
| create_date | Varchar2(8) | N | The date component of the file_name e.g. 20040608. |
| sequence_no | Varchar2(3) | N | The sequence component of the file_name e.g. 001 |
| detail_line_count | Number(6) | Y | Count of number of detail lines in the file i.e. excluding the header and trailer |
| error_in_hdr_flag | Varchar2(1) | Y | Identifies whether there was an error in the file header = Y/N |
| error_in_trl_flag | Varchar2(1) | Y | Identifies whether there was an error in the file trailer = Y/N |
| error_in_dtl_flag | Varchar2(1) | Y | Identifies whether there was an error in at least one of the detail lines. = Y/N |
| error_line_count | Number(6) | Y | Count of number of **detail** lines in the file, which were rejected because of an error. |

| processed_flag | Varchar2(1) | N | Identifies whether the file has been processed = Y/N |

### ~~5.3.2~~6.3.2   General Tables

| Tablename | TPS_FILE_REGISTER |
|---|---|

This table contains details of all files successfully created by TPS.

The row is created initially when the file is opened by StartExportFile or StartExportHRSAPFile.

The row for a file is updated at various stages in its processing – notably when it has been successfully delivered to POL (via FTMS) and when delivery of the file has been reported to the DWH.

The following columns are being **added to it**.

| Column | Type | Null | Description |
|---|---|---|---|
| ----------------------- | | | |
| destination | Varchar2(1) | Y | Identifies the destination of the file<br><br>= T    POL MIS<br>= S    HR SAP<br>= C    POL CTS<br>= F    FRTS<br>= null  TIP (i.e. pre-S80 data) |
| hr_sap_group | Varchar2(10) | Y | The HR SAP group for which the file has been created.<br><br>= null  File is not destined for HR SAP |
| hr_sap_period_id | Number(6) | Y | A unique code to identify the year and month of the HR SAP Group scheduled delivery.<br><br>The value is set when the HR SAP file has been successfully created.<br><br>Format is yyyymm<br><br>= null  File has not been successfully created yet. |

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| receipt_date | Date | Y | For all destinations except "T", this field denotes the successful receipt of files transferred by FTMS. |
|---|---|---|---|
| | | | Receipt of files with a destination of "T" are recorded at the sub file level in TPS_TIP_SUB_FILE_REGISTER. |
| | | | = null File has not been successfully transferred yet. |

## 5.46.4 Control Data

| Tablename | TPS_SYSTEM_PARAMETERS |
|---|---|

This table contains various Static/Dynamic parameters used in TPS processing

The following parameters are being added to it for use during the HR SAP and Transaction Corrections processing.

| Name | Value | Type | Description |
|---|---|---|---|
| FINAL CBDB CAP | 99 | Num | Final Cash Account Period, which is to be sent to CBDB. |
| | | | It is used during the migration to S80, to ensure there is a clean switch over between transactions being sent to CBDB and being summarised for sending to POL FS / HR SAP. |
| | | | Note that this value is only the initial value set at Point 10. The actual value is assigned by a separate script just before Point 30. |
| HR SAP CREATION OFFSET | 3 | Num | Number of days before the due delivery date that creation of the HR SAP file will be first attempted for the current period. |
| | | | This value is used by the DWH metadata, which drives the performance measure. Therefore if its value is changed, a corresponding change to the metadata must be made. |
| PIVOT DEST | HRS2 | Text | Destination of file – this value is included in the Outward Delivery File for the DWH. |
| | | | Max allowed length = 4 chars |

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| PIVOT2 DEST | HRS1 | Text | Destination of file – this value is included in the Outward Delivery File for the DWH. Max allowed length = 4 chars |
|---|---|---|---|
| PIVOT FILE PREFIX | pivt | Text | File prefix of the file delivered to HR SAP for the CFPOSPSO. Used in conjunction with PIVOT FILE SEQ to form the filename. |
| PIVOT2 FILE PREFIX | pvt2 | Text | File prefix of the file delivered to HR SAP for SPSOCFPO. Used in conjunction with PIVOT2 FILE SEQ to form the filename. |
| PIVOT FILE SEQ | 1 | Num | Sequence of file delivered to HR SAP for CFPOSPSO. This is incremented after each delivery. Note that this value is only the initial value set at Point 10. The actual value is assigned by a separate script just before Point 30. |
| PIVOT2 FILE SEQ | 1 | Num | Sequence of file delivered to HR SAP for SPSOCFPO. This is incremented after each delivery. Note that this value is only the initial value set at Point 10. The actual value is assigned by a separate script just before Point 30. |
| TC SOURCE | POLFS | Text | Source of Transaction Correction file. This value must be contained in the $2^{nd}$ field of the file header. |
| TC INTERFACE VERSION | 01 | Text | Version of interface between POLFS and TPS. This value must be contained in the $3^{rd}$ field of the file header. |
| S80 MIGRATION POINT | 0 | Num | Identifies the current migration point. |

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## 6.7. APPENDIX 2: Maestro Scheduler

The following new schedules are required to execute the HR SAP, Transaction Correction and POL MIS extract processes. The full schedule will beis described in TPS_OPS:

| Schedule Name | Schedule Dependency | Job Name | Notes |
|---|---|---|---|
| TPS_POLMIS | TPS_POLFS_FILES | | POL MIS feed |
| | | TPSC287 | Generate POL MIS files |
| | | TPSC271 | Generate Bureau Txn Feed for FRTS |
| TPS_HRSAP | TPS_POLMIS | | HR SAP extract |
| | | TPSC280 | Summarise HR SAP data |
| | | TPSC281 | Create HR SAP file |
| TPS_TC | TPSPOLMIS TPBULKLDRTPS_EOD | | Transaction Corrections |
| | | TPSC282 | Pre-Process |
| | | TPSX283.SH | Initial Load (shell script) |
| | | TPSC284 | Load TMS Table |
| | | TPSC285 | Create Error File |
| | | TPSC286 | End Job |

The detailed scheduler changes for POL FS, which affects TPSSUMM TPS_INIT_SUMM, and TPS_POLFS_SUMM and TPS_POLFS_MIG, are described in TPS_POLFS_HLD

On the following 2 pages are diagrams summarising the overall TPS schedule for

a) prior to S80
b) S80

The following key has been adopted:

| | |
|---|---|
| ▮ | Process or Schedule which will be become INACTIVE at S80 Migration Point 40- applies to "Prior to S80" diagram |
| ▦ | Process or Schedule which will be DELETED at S80 Migration Point 10 - applies to "Prior to S80" diagram |
| ▯ | NEW process or schedule - applies to "S80" diagram |
| ☐ | EXTERNAL schedule - applies to both diagrams |

Note that the changing of existing processes is not recorded in the diagrams – they just denote changes at the schedule level.

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## Prior to S80

**TPS_FILE_CNVRT** (Every 80 mins from 8:05 to 18:00)
*TPSC229 (actually called by TPSX247.sh)*
*Process errored files returned by TIP (*.TPX) and generate:*
*a) file with errored sub-files removed (*.TP_pz)*
*b) file containing sub-files in error (e.g. *.OTX ) for manual correction by SSC during the day (e.g. to create *.OTE file)*

**TPS_FILE_LOAD** (at 18:05)
*TPSC240 OTE*
*Load corrected sub file data in *.OTE file into TPS_RX_OTX_RESEND*
*TPSC240 CAE*
*Load corrected sub file data in *.CAE file into TPS_RX_CAC_RESEND*
*TPSC240 STE*
*Load corrected sub file data in *.STE file into TPS_RX_STX_RESEND*

**TPS_FL_LD_ALARM** (at 19:30)
*TPS_FILE_LOAD_ALARM*
*Raise alert if LOAD job still running*

**TPS_FL_LD_TERM** (at 19:00)
*TPS_FILE_LOAD_TERM, TPS_FILE_CNVRT_TERM*
*Send Terminate signal to previous jobs*

**APS_ONIT_CLIENT.APSC2083**
*Summary File creation*

**TPBULKHV**

**TPSSOD**
*TPSC211*
*TPS Start of Day*

**TPS_RESEND**
*TPSC232*
*Create TIP Resend file(s) from OTX table*
*TPSC238*
*Create Cash & Stock Resend file(s) from CAC and STX tables*

**TPSDAYE2**
*TPSC216*
*Extracts dtls of APS txns which were reversed e.g. uses TMS_RX_APS_TRANCTIONS_1 to create TPS_TT_REVERSALS_!*

Job level dependency

**TPSTIP**
*TPSC201*
*Produce txn files from harvested data e.g. uses data in TMS_RX_aaa_TRANSACTIONS_p Also updates TPS_TRANSACTION_TOTALS*
*TPSC225*
*Create Cash Account & Stock Holding files using data in TMS_RX_CASH_ACCOUNTS_p & TMS_RX_STOCK_HOLDINGS_p*
*TPSC271*
*Produce Bureau Transaction Feed for FRTS*

**TPSAPR**
*TPSC227*
*Create files for TPS/APS reconciliation for a) partitions 1 to 64 b) partition 65*

**TPSREP**
*TPSC234 Non-Polled Offices Report*
*TPSC250 Host Detected Txn Control Errors*
*TPSC251 Host Detected CAC Control Errors*
*TPSC252 Counter Detected CAC Reconciliation Errors*
*TPSC253 Counter Detected Msg-store Exceptions*
*TPSC254 Harvester Exceptions*
*TPSC261 Migrated Never Polled Offices*
*TPSC263 Rejected and Resent Sub-Files Summary*
*TPSC269 Overdue Cash Account*

**TPSTIPL**
*TPSC223*
*Reads flat file containing APS Summaries created by APSHost and creates single Client Transmissoin Summary (CTS) File. It passes the CLT records in file sent from APS Host, but re-generates sub-file header/trailer & File header/trailer*

**TPSPOLFS**
*TPSC274*
*Create Branch Ledger Entry files*
*TPSC275*
*Create End of Transmission file, indicating that all above files have been produced*

**TPSCACHK**
*TPSC255*
*Reads TMS_RX_CASH_ACCOUNTS_p and compares Receipts and Payments CA lines. Any discrepencies are stored in TPS_CA_LINE_COMPARISON*

**TPSMIS**
*TPSC270*
*Create NWB/DCP Transactions for DWH*
*TPSC206*
*Create data file containing the date & time of all TIP sub-file deliveries from previous day i.e. Outward Delivery File*

**TPSCAREP**
*TPSC256*
*Prodice Cash Accounts Line Report*

**TPSHCATRN**
*TPSC265*
*Processes all transaction records sent to TIP to generate Cash Account Lines which are inserted or updated into TPS_CASH_ACCOUNTS_p*

**TPSMCNT**
*TPSC219*
*Create DWH Control File, containing list of files delivered*

**TPSHCASTK**
*TPSC266*
*Processes all Stock Holding records sent to TIP to generate the related CA Lines which are then inserted or updated into TPS_CASH_ACCOUNTS_p*

**TPSHCAFINL**
*TPSC267*
*Processes the partial (leaf level) Cash Account records in TPS_CASH_ACCOUNTS_p to generate the final Cash Account Lines which are stored back in TPS_CASH_ACCOUNTS_p*

**TPSHCAREP**
*TPSC268*
*Generate the Cash Acc Reconciliation Reports a)Cash Account Lines Not Matching i.e. just the errors b)Full Cash Account i.e. all lines for Outlets in error*

**TPSTSREP** (Sat only)
*TPSC273*
*Generate weekly report of txn totals for each 5 min period during the week.*

**TPSTRSUMM**
*TPSC272*
*Populate TPS_TRANSACTION_COUNT_SUMMARY with totals for the different txn types, in each 5 min period.*

**TPSDBSTAT**
*TPSTSUsage.sh*
*Generate TPS Tablespace Usage Report*

**TPSEOD**
*TPSC207*
*Harvest Outlets & Ref data from RDDS*
*TPSC209*
*TPS End of Day - includes flip-flop*
*TPSC213*
*Synchronise TPS Outlets & Outlet EODs*
*TPSC212*
*Archive Process Tables*

**TPSHKEEP**
*TPSHousekeep.sh*
*Housekeeping of old TPS files*

**TPSBKUP**
*T_COLD_BKUP1*
*T_COLD_BKUP2*

**TPSOUTREP**
*TPSC210*
*Read TIP file delivery receipt files (*.TPR). The files are renamed and delivery date/time extracted. The data is used to update TPS_FILE_REGISTER and TPS_TIP_SUB_FILE_REGISTER for use the following day by TPSC206.*
*TPSC262*
*Create TIP Sub-file Summary Report to identify all files and sub-files created in the current day and sent to the TIP*
*TPS_SCHEDULE_COMPLETE*
*Create schedule complete flag*

**FS_BACKUP**
*FILESYS_BKUP1*
*FILESYS_BKUP2*

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Date: 15/1024/11/04

**S80**

**TPS_FILE_CNVRT** (Every 60 mins from 8:05 to 18:00)
*TPSC229 (actually called by TPSX247.sh)*
*Process errored files returned (*.TPX) and generate:*
*a) file with errored sub-files removed (*.TP_pz)*
*b) file containing sub-files in error (e.g. *.OTX) for manual correction by SSC during the day (e.g. to create *.OTE file)*

**TPS_POLFS_FMON** (at 8:30)
*TPSC276*
*Generate POLFS alarm in response to .*ERR file being detected in $POLFS_SHARE*

**TPS_FILE_LOAD** (at 18:05)
*TPSC240 OTE*
*Load corrected sub file data in *.OTE file into TPS_RX_OTX_RESEND*
*TPSC240 CAE* **[Stop at Point 40]**
*Load corrected sub file data in *.CAE file into TPS_RX_CAC_RESEND*
*TPSC240 STE* **[Stop at Point 40]**
*Load corrected sub file data in *.STE file into TPS_RX_STX_RESEND*

**TPS_FL_LD_ALARM** (at 19:30)
*TPS_FILE_LOAD_ALARM*
*Raise alert if LOAD job still running*

**TPS_FL_LD_TERM** (at 19:00)
*TPS_FILE_LOAD_TERM, TPS_FILE_CNVRT_TERM*
*Send Terminate signal to jobs running under to CNVRT and LOAD schedules run earlier*

**TPBULKHV**
Mon-Sat at 18:00
Sun at 19:30

**TPSSOD**
*TPSC211*
*TPS Start of Day*

*Job level dependencies*

**TPSDAYE2**
*TPSC216*
*Extracts dtls of APS txns which were reversed e.g. uses TMS_RX_APS_TRANSACTIONS_1 to create TPS_TT_REVERSALS_!*

**TPS_RESEND**
*TPSC232*
*Create TIP Resend file(s) from OTX table*
*TPSC238* **[Stop at Point 40]**
*Create resend Cash & Stock file*

**TPSTIP**
*TPSC201* **[Stop at Point 40]**
*Produce TIP files*
*TPSC225* **[Stop at Point 40]**
*Create Cash A/C and Stock Holding files*

**TPS_INIT_SUMM**
*TPSC290*
*Generate initial summary*

**TPS_POLFS_MIG**
*TPSC292* **[Stop at Point 40]**
*Generate POLFS summaries (before Final Cap)*
*TPSC293* **[Stop at Point 40]**
*Generate opening set of figures (at Final CAP)*

**TPS_POLFS_SUMM**
*TPSC291*
*Generate POLFS summary*

**TPSPOLFS**
*TPSC274* **[Stop at Point 40]**
*Create the Branch Ledger Entry (BLE) files*
*TPSC275* **[Stop at Point 40]**
*Create EOT file, indicating that all above files produced*

**APS_ONIT_CLIENT.APSC2083**
*Summary File creation*

**TPS_HRSAP**
*TPSC280*
*Summarise HR SAP data*
*TPSC281*
*Create HR SAP file*

**TPS_POLFS_FILES**
*TPSC294*
*Create the Branch Ledger Entry (BLE) files*
*TPSC295*
*Create EOT file, indicating that all above files produced*

**TPSTIPL**
*TPSC223*
*Reads file containing APS Summaries created by APSHost and creates single Client Transmission Summary (CTS) file.*

**TPSAPR**
*TPSC227*
*Create files for TPS/APS reconciliation for a) partitions 1 to 64 b) partition 65*

**TPS_POLMIS**
*TPSC287*
*Produce POLMIS txn files from harvested data e.g. in TMS_RX tables*
*Also updates TPS_TRANSACTION_TOTALS*
*TPSC271*
*Produce Bureau Transaction Feed for FRTS*

**DRS_TPS_EXTRCT_D**
**RD_EXTRACT.RD_HOST_EXTRCT**
**RD_EXTRACT.RD_EX**

**TPSTSREP** (Sat only)
*TPSC273*
*Generate weekly report of txn totals for each 5 min period during week.*

**TPSREP**
*TPSC234* Non-Polled Offices Report
*TPSC250* Host Detected Txn Control Errors
*TPSC251* CAC Control Errors **[Stop at Point 40]**
*TPSC252* CAC Reconliation Errors **[Stop at Point 40]**
*TPSC253* Counter Detected Msg-store Exceptions
*TPSC254* Harvester Exceptions
*TPSC261* Migrated Never Polled Offices
*TPSC263* Rejected and Resent Sub-Files Summary
*TPSC269* Overdue Cash Account **[Stop at Point 40]**

**TPSMIS**
*TPSC270* Create NWB/DCP Transactions for DWH
*TPSC206*
*Create data file containing the date & time of all sub-file deliveries from previous day i.e. Outward Delivery File*

**TPSMCNT**
*TPSC219*
*Create DWH Control File, containing list of files delivered*

**TPSEOD**
*TPSC207*
*Harvest Outlets & Ref data from RDDS*
*TPSC209*
*TPS End of Day - includes flip-flop*
*TPSC213*
*Synchronise TPS Outlets & Outlet EODs*
*TPSC212*
*Archive Process Tables*

**TPSDBSTAT**
*TPSTSUsage.sh*
*Generate TPS Tablespace Usage Report*

**TPSCACHK**
*TPSC255* **[Stop at Point 40]**
*Propulate TPS_CA_LINE_COMPARISONS*

**TPS_TC** (at 6:05)
*TPSC282*
*Pre-process*
*TPSX283.sh*
*Initial load*
*TPSC284*
*Load TMS table*
*TPSC285*
*Create error file*
*TPSC286*
*End job*

**TPSTRSUMM**
*TPSC272*
*Populate TPS_TRANSACTION_COUNT_SUMMARY with totals for the different txn types, in each 5 min period.*

**TPSCAREP**
*TPSC256* **[Stop at Point 40]**
*Produce CA Line Comparison Report*

Follows
TPS_TC.TPSC264

**TPS_BACKUP**
ISD schedules for BCV
Backup of TPS Database

**TPBULKLOAD**

**TPSOUTREP**
*TPSC210*
*Read file delivery receipt files (*.TPR). The files are renamed and delivery date/time extracted. The data is used to update TPS_FILE_REGISTER and TPS_TIP_SUB_FILE_REGISTER for use the following day by TPSC206.*
*TPSC262*
*Create Sub-file Summary Report to identify all sub-files and sub-files created in the current day and sent to the POL*
*TPS_SCHEDULE_COMPLETE*
*Create schedule complete flag*

**TPSHKEEP**
*TPSHousekeep.sh*
*Housekeeping of old TPS files*

**TPS_FS_BACKUP**
ISD schedules for BCV
Backup of TPS Filesystem

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Version: ~~2.0~~**2.0**
Date: ~~15/10~~**24/11**/04



**TPS_FILE_CNVRT** (Every 60 mins from 8:05 to 18:00)
**TPSC229** (actually called by TPSX247.sh)
Process errored files returned by TIP (*.TPX) and generate:
a) file with errored sub-files removed (*.TP_pz)
b) file containing sub-files in error (e.g. *.OTX) for manual correction by SSC during the day (e.g. to create *.OTE file)

**TPS_FILE_LOAD** (at 18:05)
**TPSC240 OTE**
Load corrected sub file data in *.OTE file into TPS_RX_OTX_RESEND
**TPSC240 CAE** Inactive
**TPSC240 STE** Inactive

**TPS_FL_LD_ALARM** (at 19:30)
**TPS_FILE_LOAD_ALARM**
Raise alert if LOAD job still running

**TPS_FL_LD_TERM** (at 19:00)
**TPS_FILE_LOAD_TERM, TPS_FILE_CNVRT_TERM**
Send Terminate signal to previous jobs

**APS_ONIT_CLIENT.APSC2083**
Summary File creation

**TPBULKHV**

**TPSSOD**
**TPSC211**
TPS Start of Day

**TPS_RESEND**
**TPSC232**
Create TIP Resend file(s) from OTX table
**TPSC238** Inactive

**TPSSUMM**
**TPSC290**
Generate initial summary

**TPSDAYE2**
**TPSC216**
Extracts dtls of APS txns which were reversed e.g. uses TMS_RX_APS_TRANACTIONS_1 to create TPS_TT_REVERSALS_f

**TPSAPR**
**TPSC227**
Create files for TPS/APS reconciliation for
a) partitions 1 to 64
b) partition 65

**TPSPOLFS**
**TPSC291**
Generate POLFS summary
**TPSC274**
Produce POLFS summary files i.e. BLE files
**TPSC275**
Create End of Transmission file, indicating that all above files produced

**TPSHRSAP**
**TPSC280**
Summarise HR SAP data
**TPSC281**
Create HR SAP file

**TPSPOLMIS**
**TPSC201** Inactive
**TPSC225** Inactive
**TPSC287**
Produce txn files from harvested data e.g. uses data in TMS_RX_aaa_TRANSACTIONS_p
Also updates TPS_TRANSACTION_TOTALS
**TPSC271**
Produce Bureau Transaction Feed for FRTS

**TPBULKLDR**

**TPSTC**
**TPSC282**
Pre-process
**TPSX283.sh**
Initial load
**TPSC284**
Load TMS table
**TPSCTCAGT**
Txn Correction Bulk Loader Agent
**TPSC285**
Create error file
**TPSC286**
End job

**TPSREP**
**TPSC234** Non-Polled Offices Report
**TPSC250** Host Detected Txn Control Errors
**TPSC251** Inactive
**TPSC252** Inactive
**TPSC253** Counter Detected Msg-store Exceptions
**TPSC254** Harvester Exceptions
**TPSC261** Migrated Never Polled Offices
**TPSC263** Rejected and Resent Sub-Files Summary
**TPSC269** Inactive

**TPSTIPL**
**TPSC223**
Reads flat file containing APS Summaries created by APSHost and creates single Client Transmisson Summary (CTS) File.
It passes the CLT records in file sent from APS Host, but re-generates sub-file header/trailer & File header/trailer

**TPSMIS**
**TPSC270**
Create NWB/DCP Transactions for DWH
**TPSC206**
Create data file containing the date & time of all TIP sub-file deliveries from **previous** day i.e. Outward Delivery File

**TPSCACHK**
**TPSC255** Inactive

**TPSCAREP**
**TPSC256** Inactive

**TPSMCNT**
**TPSC219**
Create DWH Control File, containing ist of files delivered

**TPSTSREP** (Sat only)
**TPSC273**
Generate weekly report of txn totals for each 5 min period during the week.

**TPSTRSUMM**
**TPSC272**
Populate TPS_TRANSACTION_COUNT_SUMMARY with totals for the different txn types, in each 5 min period.

**TPSDBSTAT**
**TPSTSUsage.sh**
Generate TPS Tablespace Usage Report

**TPSEOD**
**TPSC207**
Harvest Outlets & Ref data from RDDS
**TPSC209**
TPS End of Day - includes flip-flop
**TPSC213**
Synchronise TPS Outlets & Outlet EODs
**TPSC212**
Archive Process Tables

**TPSHKEEP**
**TPSHousekeep.sh**
Housekeeping of old TPS files

**TPSBKUP**
**T_COLD_BKUP1**
**T_COLD_BKUP2**

**TPSOUTREP**
**TPSC210**
Read TIP file delivery receipt files (*.TPR). The files are renamed and delivery date/time extracted. The data is used to update TPS_FILE_REGISTER and TPS_TIP_SUB_FILE_REGISTER for use the following day by TPSC206.
**TPSC262**
Create TIP Sub-file Summary Report to identify all files and sub-files created in the current day and sent to the TIP
**TPS_SCHEDULE_COMPLETE**
Create schedule complete flag

**FS_BACKUP**
**FILESYS_BKUP1**
**FILESYS_BKUP2**

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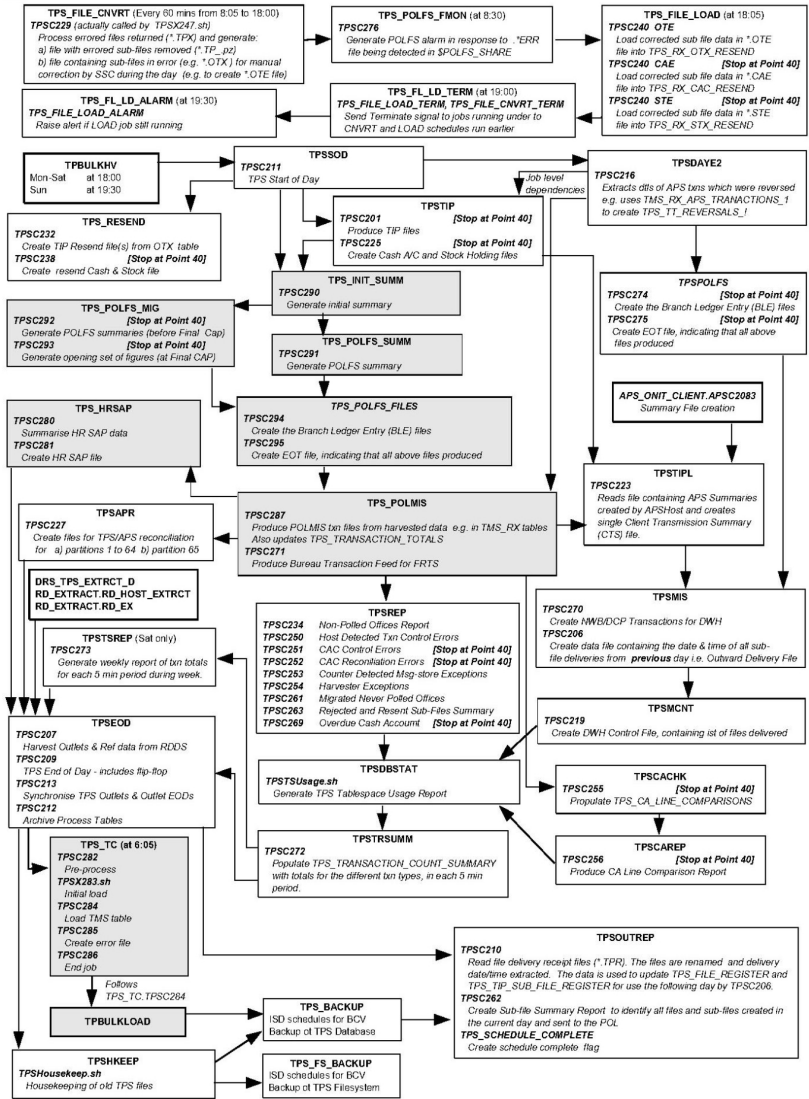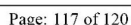Ref: EA/HLD/009
Version: 2.0~~2.0~~
Date: ~~15/10~~24/11/04

## ~~7.~~8. APPENDIX 3: Documents Affected

### ~~7.1~~8.1 Changed documents

The following documents should be changed as part of this development.

| Ref | Description | Comment | Owner |
|---|---|---|---|
| DW/IFS/021 | TPS to DWH AIS | a) OFD file contains SAP, CTS and FRTS details as well.<br>b) FAD code is now nullable (see 5.3.7.2) | Fujitsu |
| EA/IFS/002 | POL FS to TMS/Horizon Transaction Corrections Interface ~~Spec~~ | Bring set of Error Codes in-line with this document. | POL |
| NB/IFS/012 | Bureau Feed for FRTS | a) CAP and BP fields in BTD file will be null<br>b) BCT aggregation changed<br>c) Interface directory to EDG changed | Fujitsu |
| PI/LLD/005 | TPSC229 – Process TIP Reject Files | Cater for increase in length of POLMIS lines e.g. due to inclusion of more additional data | Fujitsu |
| PI/LLD/007 | TPSC232 – Create TIP OTX Resend Files | If "S80 MIGRATION POINT" >= 40 then cater for changing format of POLMIS | Fujitsu |
| PI/LLD/027 | TPSC206 – Create Delivery File | Now include SAP info, derived from TPS_FILE_REGISTER | Fujitsu |
| PI/LLD/028 | TPSC207 - Harvest Branch Info from RDDS | New tables being populated | Fujitsu |
| PI/LLD/030 | TPSC210 - Harvest Receipt Information | Handle files other than *TPR | Fujitsu |
| PI/LLD/031 | TPSC211 – Start of Day | Add function DropCreatePartition | Fujitsu |
| PI/LLD/036 | TPSC223 – Create CTS Flie | a) File now output to $CTS_OUPUT<br><br>b) Reference new AIS (EA/IFS/005) | Fujitsu |
| PI/LLD/037 | TPSC225 – Create TIP STX Files | a) Suppress data if CAP > Final CAP<br>b) Module is only active if "S80 MIGRATION POINT" < 40 | Fujitsu |

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Ref:     EA/HLD/009
Version:   2.02.0
Date:    15/1024/11/04

| PI/LLD/038 | TPS Common | StartExportFile changed and StartExportHRSAPFile created | Fujitsu |
| PI/LLD/046 | TPSC240 – Load Resend Tables | If "S80 MIGRATION POINT" >= 40 then<br>a) cater for changing format of POLMIS<br>b) cater for extending set of record types<br>c) when called for parameters CAE and STE, then exit doing nothing | Fujitsu |
| PI/LLD/049 | TPSC271 – Generate Bureau Feed | a) BCT aggregation changed<br>b) $TIP_OUTPUT replaced by $FRTS_OUTPUT | Fujitsu |
| TD/ION/005 | FTMS Configuration for Pathway TPS to POCL TIP Links | New FTMS services required | Fujitsu |
| TI/DES/002 | TPS High Level Design | Carry all changes into main TPS doc | Fujitsu |
| TI/IFS/008 | Horizon to Post Office TIS | Interface to TIP replaced by several nnew interfaces | Fujitsu |
| TI/MAN/002 | TPS Operations Manual | a) Changes to schedule<br><br>b) New processes introduced<br><br>c) New parameters in TPS_SYSTEM_PARAMETERS<br><br>d) Identify how HR SAP file, which is delivered late, can be identified. | Fujitsu |

## 7.28.2    Withdrawn documents

The following documents should be withdrawn as part of this development – but not until after Point 40 in the Migration.

| Ref | Description | Comment |
| --- | --- | --- |
| PI/LLD/012 | TPSC238 - Resend corrected CAC & STK files | Cash Accounts no longer required |
| PI/LLD/019 | TPSC255 - Create TPS_CA_LINE_COMAPARISONS table | Cash Accounts no longer required |
| PI/LLD/020 | TPSC256 CA Line Comparison Report | Cash Accounts no longer required |
| PI/LLD/023 | TPSC201 - Produce TIP Files | Replaced by TPSC287 |

| PI/LLD/040 | TPSC265 - TPS CAC Transaction Processing | Cash Accounts no longer required |
| PI/LLD/041 | TPSC266 - TPS CAC Stock Processing | Cash Accounts no longer required |
| PI/LLD/042 | TPSC267 - Generate Non Leaf CAC Lines | Cash Accounts no longer required |
| PI/LLD/043 | TPSC268 - Compare counter generated CA with HOST | Cash Accounts no longer required |