EAC/AA Physical Design Technical Specification

Version Number 1~~8~~8.~~0~~12

EAC/AA Technical Specification

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Date	: 5~~27~~ November~~June~~ 2015~~3~~
Prepared by	: Cognizant
Approved by (Cognizant)	: Project Manager

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1 Introduction

1.1 Purpose

This document [ETSPEC] describes the Physical Design for the EAC/AA system.

The content of this Physical Design is produced in accordance with the Physical Design Technical Specification Product Description [PDTSPD]. It is derived from the requirements described in the Estimation of Annual Consumption / Annualised Advance (EAC/AA) System [EACAAURS], the EAC/AA Logical Design and where appropriate, from the data interfaces described in Data Interfaces [DIS]. The TA2000 amendments are derived from the requirements described in the Pool Change Management Circulars 1040 and 1076.

1.2 Scope

This document is the Physical Design stage deliverable for EAC/AA and will be used as the basis for the physical implementation of the EAC/AA system.

It should be read in conjunction with the following documents:

- EAC/AA Logical Data Design [ELDATA] containing the following:
  - the Logical Data Model, which provides a detailed logical description of the data and its structure;
  - the Data Catalogue, which describes the data items for the system.
- EAC/AA Conceptual Model [ECONMOD], containing Event Descriptions which will be cross-referred to the Function Definitions;
- EAC/AA User Requirements Specification [EACAAURS] containing the details of the Elementary Process Descriptions.
- Physical Design Technical Specification Product Description [PDTSPD].
- EAC/AA Function Definition and User Catalogue [EFUNDEF].
- Data Interfaces [DIS].
- The SVA November 05 BRS [NOV05BRS].

1.3 Structure of Document

- Section 2 high level design specifications based on the EAC/AA User Requirements Specification [EACAAURS] and EAC/AA Function Definition and User Catalogue [EFUNDEF].
- Section 3 contains the Interfaces to the EAC/AA system based on the Data Interfaces [DIS] and the EAC/AA Function Definition and User Catalogue [EFUNDEF].

- Section 4 contains the description of the database based on the EAC/AA Logical Data Design [ELDATA].
- Section 5 contains a specification of the EPD subsystem.
- Section 6 contains a specification of the ECP subsystem.
- Section 7 contains a specification of the ESC subsystem.
- Section 8 contains a specification of the EFR subsystem.
- Section 9 contains a specification of the ESL subsystem.
- Section 10 contains a specification of the EAR subsystem.
- Section 11 contains a specification of the ERP subsystem.
- Section 12 contains a specification of the EMC subsystem.
- Section 13 contains a specification of the EUA subsystem.
- Section 14 describes the cross references from the EAC/AA Logical Design and the EAC/AA User Requirements Specification [EACAAURS] to the EAC/AA Physical Design [ETSPEC].

1.4 Amendment History

Issue	Details
0.900	Draft for internal review
0.901	Further draft for internal review
0.990	Draft for external review
1.000	Issue incorporating changes following external review (EPL/LOG/168 dated 31/1/97) and the completion of the Acceptance Procedures Period (APP).
1.100	Issue incorporating changes following the final FAT and defect reports after the client's integration tests. The following ORs have been addressed in this issue. 5.1.215 (CLAR057) 5.1.271 (CLAR061) 5.1.298 (CLAR065) 5.1.299 (CLAR062) 5.1.315 (FAT) 5.1.323 (FAT) 5.1.326 (FAT) 5.1.365 (FAT) 5.1.397 (CLAR071) 5.1.970 (Internal) 5.1.1218 (Defects 66 & 81) 5.1.1220 (Internal) 5.1.1693 (LCR048) 5.1.1816 (Defect 428)

Issue	Details
	5.1.2045 (Defect 2489)
2.000	Issue incorporating changes following external review of v1.100
2.001	5.1.2217
	5.1.2332 (Defect 1415)
	5.1.2354 (LCR080)
	5.1.2429 (Defect 1501)
	Draft Issue consistent with software release R1.2
2.500	Incorporating Internal Review Comments. Draft issue for external review consistent with software release R1.2
2.901	Working version for R2 design. Will not be carried forward into v4.000.
2.990	Working version for R2 design. Will not be carried forward into v4.000.
3.000	Working version for R2 design. Will not be carried forward into v4.000.
4.000	Authorised version consistent with software release R1.3. Incorporating comments from Pool review of v2.500. Includes OR 5.1.2445 (Logica Internal.)
4.901	Draft for internal review. Merge of v3.000 and v4.000. Change bars show changes from v3.000.
4.990	Issued to Pool for review. Merge of v3.000 and v4.000. Change bars show changes from v4.000.
5.000	Authorised Version. Merge of v3.000 and v4.000. Change bars show changes from v4.000.
5.001	Draft version incorporating the following ORs:
	OR2716, OR2723, OR2777
5.900	Draft for internal review incorporating TA2000 changes (SIR R391 / LCR105 & SIR R200 / LCR117). Change bars show changes from v5.000. Also incorporates OR2828.
5.901	Draft incorporates OR2834.
5.990	Draft for external review. Also incorporating OR2844.
5.991	Incorporating internal review comments.
6.000	Authorised version.
6.001	Draft version incorporating the following ORs:
	OR2869 (LCR138)
6.001	OR2894 - Files are processed when there are additional fields
6.990	Issued to Pool for review.
7.000	Authorised version.
7.990	Incorporating LCR 160/3 (SIR 2296): Reasonableness Checks for Annualised Advances.
7.991	Incorporating internal review comments.
7.992	Incorporating internal review comments.
	OR3019 - PEEX_001 file format should have optional

Issue	Details
	EAC EFSD.
7.993	Incorporating LCR170/2 - Upgrade to Oracle 8i.
8.000	Authorised version.
8.001	Change to Office 2000
8.002	Changes relating to ELEXON superseding the Electricity Pool
8.003	Draft incorporates OR3196.
8.990	Updated document references
	Version for ELEXON review
8.991	Incorporating ELEXON review comments.
8.992	Incorporating ELEXON review comments.
9.000	Authorised version.
9.001	Incorporating LCR225 - Upgrade to Oracle 9i
9.990	Version for ELEXON review
9.991	Applied ELEXON review comments
10.000	Authorised version
10.001	Incorporating LCR218 - BETTA
	Draft incorporating OR3386
10.002	Incorporating LCR223 EAC/AA Calculator Issues
10.990	Updated the Copyright Notice
	Version for ELEXON review
10.991	Applied ELEXON review comments.
11.000	Made Definitive
12.000	Updated document references
12.001	Updated for November ’04 release
	Incorporating CP1052: UNIX Upgrade 5.1A – 5.1B
13.000	Made definitive
13.900	Draft for internal review for Nov. 05 release
	Incorporating: CP1081 : Manual Initiation of DMA Calculation; CP933 : Management of System Security
13.901	Incorporating internal review comments.
13.990	Version for ELEXON review
13.991	Applied ELEXON review comments.
13.992	Applied further ELEXON review comments.
13.993	Applied review comments from the ELEXON test team.
13.994	Incorporating SVA Variation 001
14.000	Made Definitive
14.990	Updated for November 06 release incorporating:
	CP1117 upgrade of EAC/AA to Oracle 10g
14.991	Applied internal review comments.
14.992	Updated to re-introduce print button details
14.993	Updated from internal review
14.994	Updated from ELEXON review comments

Issue	Details
15.000	Authorised version
15.990	Updated for February 08 release incorporating:
	OR3689 – Omissions from Nov 06 documents
15.991	Incorporating internal review comments.
16.000	Authorised version
16.010	Updated document classification
16.990	Updated for February 10 release incorporating:
	CP1311 – replacement of negative EACs
16.991	Incorporating ELEXON review comments
16.992	Incorporating further review comments from ELEXON
17.000	Definitive version
18.0	CP1383 - Updated for Tech Upgrade (Oracle DB upgrade from 10.2.0.3 to 11.2.0.3 and OAS upgrade from 10.1.2.2 to 11.1.1.6)
18.1	P305 - Updated for November 2015 Release
18.2	Incorporated the ELEXON Review comments
18.3	P305 (CR02) - Updated for November 2015 Release

1.5 Summary of Changes

Amendments as listed in the amendment history.

1.6 Changes Forecast

Inclusion of review comments and agreed Change Requests.

1.7 References

Mnemonic	Information	Details
[ETSPEC]	Title: Version No: Author: Date:	This document 17.001 Cognizant 27 June 2013
[PDTSPD]	Title: Version No: Author: Date:	Physical Design Technical Specification Product Description 1.0 Peter D G Smith 16 December 1996
[EACAAURS]	Title: Version No: Author: Date:	URS-Estimation of Annual Consumption (EAC/AA) System 10.0 ELEXON 3 November 2005
[ITTR2]	Title: Version No: Author: Date:	Invitation to Tender-Release 2 of Pool Software 1.0 Pool 25 February 1998
[RESPR2]	Title: Version No: Author: Date:	Response to ITT for Release 2 1.100 Logica 5 March 1998
[ECONMOD]	Title: Version No: Author: Date:	EAC/AA Conceptual Process Model 13.000 ELEXON 28 October 2005
[EFUNDEF]	Title: Version No: Author: Date:	EAC/AA Function Definition and User Catalogue 14.000 ELEXON 28 February 2008
[ELDATA]	Title: Version No: Author: Date:	EAC/AA Logical Data Design 12.000 ELEXON 28 October 2005
[TSYSARC]	Title: Version No: Author: Date:	Technical System Architecture 1.0 Mark Standish 6 January 1997
[DIS]	Title: Version No: Author: Date:	SVA Data Catalogue Volume 1: Data interfaces 4.0 ELEXON 20 March 2002
[NOV05BRS]	Title: Version No: Author: Date:	BRS for CPs in SVA November 05 Release 2.0 ELEXON 13 July 2005
[EINGDE]	Title: Issue No: Author: Date:	EAC/AA Installation Guide. 17.0 ELEXON 27 June 2013

Mnemonic	Information	Details
[ESMGDE]	Title: Issue No: Author: Date:	EAC/AA System Management Guide. 17.0 ELEXON 27 June 2013

1.8 Abbreviations

AFYC	Average Fraction of Yearly Consumption
ASCII	American Standard Code for Information Interchange
BETTA	British Electricity Transmission and Trading Arrangement
BRS	Business Requirements Solution
CP	Change Proposal
DMA	Deemed Meter Advance
EAC/AA	Estimation of Annual Consumption / Annualised Advance
GSP	Grid Supply Point
HH	Half Hourly
ISRA	Initial Settlement and Reconciliation Agent
LAN	Local Area Network
NHHDA	Non Half Hourly Data Aggregation
SQL	Structured Query Language
SVA	Supplier Volumes Allocation
URS	User Requirements Specification

1.9 Intellectual Property Rights and Copyright

2 High Level Design Specification

2.1 System Overview

The EAC/AA System will be operated by accredited Non Half Hourly Data Collectors. Its main functions are as follows:

- Generate Estimated Annual Consumptions, based on Meter Advances, Daily Profile Coefficients and previous estimates
- Generate Deemed Meter Advances, based on Estimated Annual Consumptions (or Annualised Advance if available) and Daily Profile Coefficients
- Generate Deemed Meter Readings, based on Meter Readings and Daily Profile Coefficients
- Load Daily Profile Coefficients for varying Settlement Dates and originating ISR Agents to support the functionality described above
- Ensure appropriate data is stored in order to repeat calculations
- Maintain configurational data in the database
- To provide reports on data associated with EAC/AA

The EAC/AA calculation requires the Daily Profile Coefficients data along with Meter Advances for the Annualised Advance calculation and the previous or initial EAC, MSIDs impacted by Demand Control Event and Daily Profile Data for the Forward EAC calculation. The output is the Annualised Advance and the Forward EAC. The data required for the process is supplied as files with the resulting calculated data output as a file.

The Deemed Meter Advance calculation is similarly supplied with data in a file and the resulting advance made available as an output file.

Thus, for both original EAC/AA calculation functions, files need to be received, some processing performed and output delivered as a file. However, neither the inputs nor the outputs to these calculations are stored in the database. The principal data stored are the Daily Profile Coefficients.

In addition it is required that EAC/AA can be installed to run in one of two modes:

- In Manual Mode, all Daily Profile Coefficient, EAC/AA Calculation Request, ~~and~~ DMA Calculation Request data, MSIDs impacted by Demand Control Event, Daily Profile Data and Disconnected MSIDs and Estimated HH Demand Disconnection Volumes files which have been received and not yet processed are listed on a screen. The user initiates the loading of Daily Profile Coefficients and the calculation of EAC/AAs and of Deemed Meter Advances by selecting files from this list.
- In Automatic Mode, the system automatically initiates these processes upon receipt of the data files.

There is also an Ad Hoc Deemed Meter Reading Calculation for which the user enters the input data on the screen, and the calculated data is output on the screen. The inputs and the outputs of this calculation are stored in the database.

With these requirements, the system can be divided into the following sections:

File Receipt:

A separate process is used to read in files as they arrive from outside the system. This process checks the file is not corrupt and stores what type of file it is in the database. In Automatic Mode, the File Receipt Process also initiates the EAC/AA Calculation, DMA Calculation, ~~and~~ Daily Profile Coefficient, MSIDs impacted by Demand Control Event, Daily Profile Data and Disconnected MSIDs and Estimated HH Demand Disconnection Volumes Load processes.

User Interface:

The user interface is used to maintain or view the data in the database, and to generate reports on the database. In addition in Manual Mode the user interface is used to initiate the EAC/AA Calculation, DMA Calculation and Daily Profile Coefficient Load processes. In Manual or Automatic mode the Ad Hoc Deemed Meter Reading Calculation is initiated via the User Interface. System Manager users manage the user accounts via the User Interface.

Scheduler Process:

This process is used to manage the execution of calculations and loads, initiated from the User Interface or from the File Receipt process. So, when a user starts a calculation off, the details of the job are stored in the database whereupon the Scheduler reads the details and runs the executable.

Database:

This stores Daily Profile Coefficients, Configurational data, details of what files have been read by the system, and the inputs and outputs of Ad Hoc Deemed Meter Reading Calculations.

The design objectives for the EAC/AA system are:

- To provide a Physical Design that meets the Logical Design requirements in an effective manner.
- Ensure the Daily Profile Coefficients are stored efficiently in the database. This should support the performance of processes accessing the data, while not compromising the time to populate it on loading.
- To provide sensible interfaces to external systems to aid file input and output.

2.2 System Architecture

The EAC/AA system employs a three-tier logical architecture, comprising:

- a Server Tier : the Oracle database;
- a Middle Tier : the Oracle Application Server;
- a Client Tier : the web browser.

This is the architecture mandated by Oracle in order to run Oracle Application Server Forms Services, which has components running on the Middle Tier and the Client Tier.

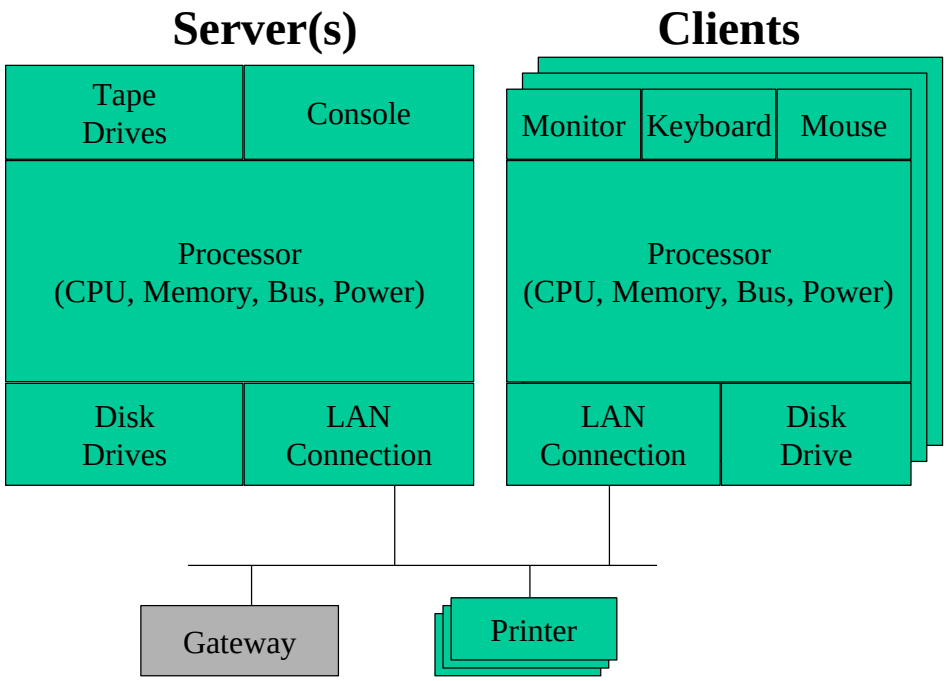
Note that where the term “server” is used in this document, this is always referring to the Server Tier unless the phrase “Oracle Application Server” is specifically used. Similarly the term “EAC/AA System” always refers to the components of EAC/AA which run on the Server Tier.

All user interaction with the EAC/AA system is via the Oracle Forms.

2.2.1 Physical Architecture

Physically, the Server Tier is hosted on a POSIX server, while the Client Tier comprises a number of PC clients connected over a local area network. The Middle Tier may be implemented as a separate physical server, or alternatively the Server Tier and Middle Tier may both be hosted on the same physical server.

The following figure illustrates the components that make up this physical architecture (indicating one or more servers depending on how the Middle Tier is implemented):



The detailed configuration of each component, eg:

- CPU speed and number,
- memory size
- number and capacity of disk drives
- number and capacity of tape drives
- network line speed

is dependent on the volumes to be handled by a particular instance of a system. However, the client monitor is expected to support a display area of at least 800 by 600 pixels (as per [TSYSARC]).

All application code for the server will be developed assuming a 32-bit architecture (eg: it will not assume 64-bit integers). If the volume of data to be processed by a particular instance of a system requires very large volumes of memory to achieve the throughput, 64-bit addressing will then be required (for that system). However, other installations of the system, that process smaller volumes of data, would still be able to run on 32-bit processors.

The "Gateway" is a separate system (outside the scope of the EAC/AA) via which files are received. The interface with the Gateway is assumed to be file transfer across the Local Area Network.

Note that these file transfers are both assumed to be a "push" oriented, ie:

- for receipt the Gateway transfers the files to a directory on the server

2.2.2 Software Architecture

The Server Tier runs an Oracle 11g database on a UNIX operating system with bespoke software written in C (using embedded SQL statements to interface with the database).

The Middle Tier runs two components of Oracle Application Server Forms Services: the Forms Listener Servlet and the Forms Runtime Process. If the Middle Tier is a separate physical server, the Operating System may be the same as for the Server Tier or else Microsoft Windows.

The Client Tier runs the web browser and a third component of Oracle Application Server Forms Services, the "Client" (but this is downloaded automatically from the Middle Tier to the client and does not need to be installed): the Operating System and Web Browser may be any that are supported by Oracle for use with Oracle Application Server.

For specific software version numbers, software standards and further details regarding the client and server architecture of EAC/AA, refer to the System Architecture sections within the user guide documentation: please see [EINGDE] & [ESMGDE] in the references section. It should be noted that the system architecture (client and server) supporting one EAC/AA system might vary from the system architecture which supports another EAC/AA system.

Within the C code, it is assumed that the C compiler will support the following minimum precision for data types:

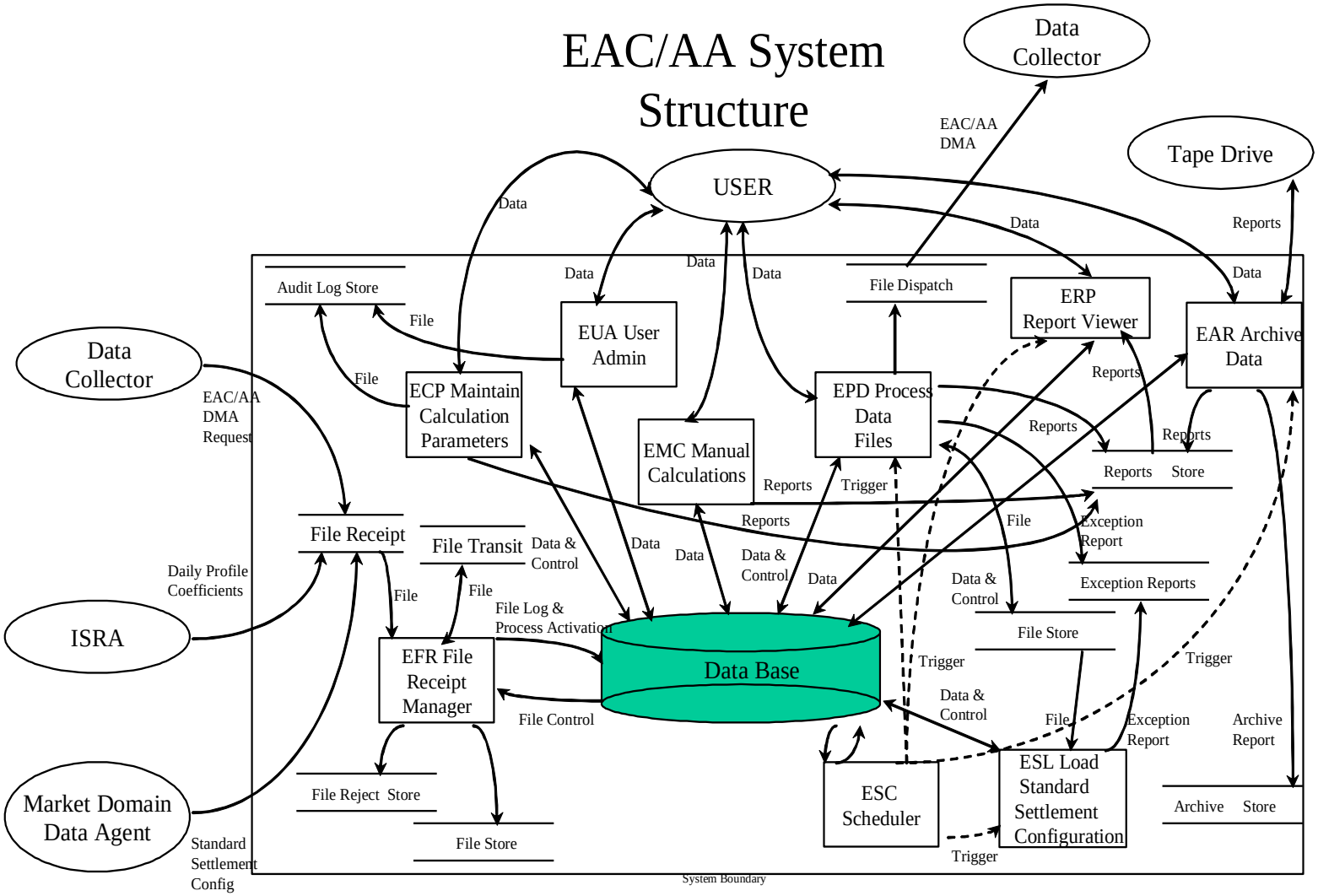
- "long" at least 32 bits (eg: LONG_BIT >= 32)
- "double" at least 15 digits precision (eg: DBL_DIG >= 15)

The number of active clients is assumed to be in the order of 5-10. The software will only limit the number of clients according to the licensing restrictions of the COTS products.

All communications with external systems are via file transfer. EAC/AA reads and writes files in specified directories.

2.3 System Structure

The system structure diagram on the next page, shows all the subsystems within the EAC/AA system, it also shows the data flow between the subsystems and the data flows from external sources.


EAC/AA System Structure
Data Collector
EAC/AA DMA
Tape Drive
USER
Data
Reports
Audit Log Store
File
EUA User Admin
File Dispatch
ERP Report Viewer
EAR Archive Data
Data Collector
EAC/AA DMA Request
ECP Maintain Calculation Parameters
EPD Process Data Files
EMC Manual Calculations
Reports
Trigger
Reports Store
Exception Report
File Receipt
File Transit
Data & Control
Daily Profile Coefficients
ISRA
File Log & Process Activation
Exception Reports
File Store
EFR File Receipt Manager
Data Base
File Control
Archive Report
Market Domain Data Agent
File Reject Store
ESC Scheduler
ESL Load Standard Settlement Configuration
Archive Store
Standard Settlement Config
System Boundary

2.4 Subsystem Description

When installed to run in Manual Mode, the EAC/AA system is mainly user driven, the user interacts with the system via Oracle Forms, entering, amending existing data and initiating batch processes. In this mode, the only batch process to be run automatically is the loading of Standard Settlement Configuration files.

When installed to run in Automatic Mode, all the major batch processes are run automatically.

Apart from the user interface and batch load and calculation processes themselves, there are also subsystems, within the EAC/AA system, to allow management of file receipt, scheduling of batch jobs, viewing of reports, and administration of user accounts.

2.4.1 EPD Process Data Files

This subsystem loads the Daily Profile Coefficients files received from the ISR Agent, and processes the MSIDs impacted by Demand Control Event file, Daily Profile Data file and Disconnected MSIDs and Estimated HH Demand Disconnection Volumes files & EAC/AA and Deemed Meter Advance calculation request files, delivering the calculation results in output files. These are batch processes.

These batch processes are initiated from the User Interface in Manual Mode, or by the File Receipt Manager (EFR) in Automatic Mode.

The background processes responsible for the calculations and loading of the data will be written in Oracle Pro*C. The communications between the PC client and the Oracle Database on the Server is established and controlled via Oracle Net11.

2.4.2 ECP Maintain Calculation Parameters

This subsystem provides the facility to maintain the parameters used in calculation of the EAC/AA and deemed meter advances. This subsystem allows maintenance of Standard Settlement Configurations, Smoothing Parameters and GSP Group Profile Class Default EACs, and also allows ad-hoc reports to be produced on Daily Profile Coefficients. Additionally this subsystem will allow identification of input files used in calculations of EAC/AA and Deemed Meter Advances.

Functionality provided by this subsystem is online and initiated by the user.

The subsystem will be implemented using Oracle Forms, with one batch process to produce a report. All the user interactions will be controlled via the Oracle Forms running on the application server, communicating with the database on the Server via Oracle Net11.

2.4.3 ESL Load Standard Settlement Configuration

This subsystem loads the Standard Settlement Configurations data sent to EAC/AA system from the Market Domain Data Agent. This data contains Standard Settlement Configurations and Average Fractions of Yearly Consumption.

The processes will be initiated by the Scheduler (ESC) subsystem, once presence of the file is detected by the File Receipt Manager (EFR) subsystem. The ESL process will read the file containing the Standard Settlement Configuration and update the database in a batch mode.

The subsystem will be implemented using Oracle Pro*C.

2.4.4 EFR File Receipt Manager

The File Receipt Manager is responsible for monitoring the arrival of new files from external sources.

A daemon process regularly looks for new external files in a directory. For each file found, the header information is read which indicates the file contents, file source etc. Once the file reference record is created in the database the file is moved to the EAC/AA file store.

The File Receipt Manager can also schedule jobs by writing new records to the Scheduler control table.

This subsystem will be implemented in Oracle Pro*C.

2.4.5 ESC Scheduler

This subsystem provides the facilities to schedule and manage execution of EAC/AA batch processes.

A daemon process regularly looks for new records, containing the name of the executable and the necessary parameters for its execution in the Scheduler control table. Once a new record has been detected in the table, a background process is forked to execute the batch process.

This subsystem will be implemented using a combination of Oracle Pro*C and Oracle PL/SQL.

2.4.6 EAR Archive Data

This subsystem provides the facilities to archive and produce reports of the Daily Profile Coefficients and Smoothing Parameters archived.

The archive and report process are initiated by the user through the user interface.

There are two background processes within this subsystem: The archive process will produce a report of the Daily Profile Coefficients and deletes the data from the relevant tables, the report is then sent to the tape drive. The report process will read the relevant report and places it in the reports store.

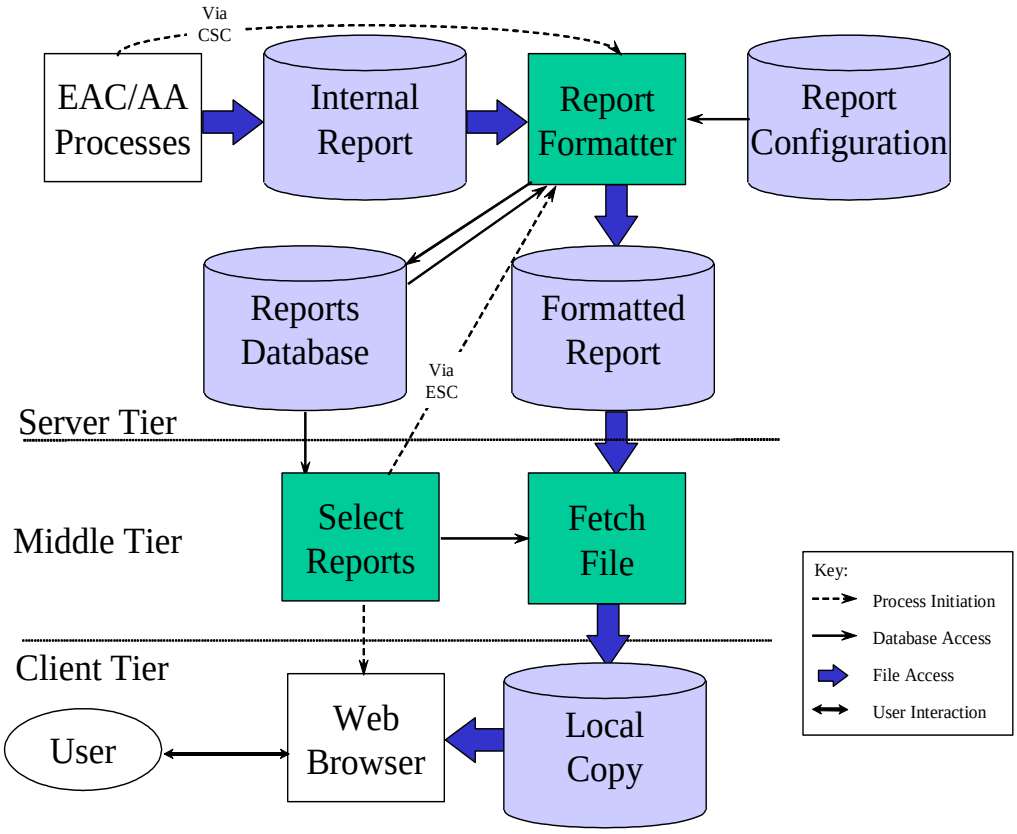
This subsystem will be implemented using Oracle Pro*C.

2.4.7 ERP Report Viewer

This subsystem is concerned with the viewing of human-readable reports. Some of the batch processes directly produce human-readable reports, but other batch processes produce machine-readable reports, which ERP converts to human-readable format, e.g. the EAC/AA Calculation process produces machine-readable exception reports.

The human-readable reports can be displayed at the client or sent for printing.

The following diagram shows how the elements of the ERP subsystem interacts with the user and the batch processes.



The server process ("Report Formatter") is written using Pro*C and is invoked, via the Scheduler (ESC), from PL/SQL code that is used by the Oracle Form ("Select Reports"). The "Fetch File" process is implemented as a PL/SQL procedure which uses the UTL_FILE package to access files from the server plus the TEXT_IO package to write files on the application server.

The Oracle Form ("Select Reports") lists available reports, as recorded in the database. From the Form a report can be selected for display or printing. In the display case, a separate Report Viewer application will be started.

The formatting information, used by the Report Formatter, is specified in database tables.

2.4.8 EMC Manual Calculations

This subsystem provides the facility for the user to request an Ad Hoc Deemed Meter Reading Calculation. The user enters the input data for the calculation on an Oracle Form, and the same form displays the calculation results. The user can also request an audit report of the inputs and outputs of Ad Hoc Deemed Meter Reading Calculations, from the Audit Report form.

2.4.9 EUA User Administration

This system allows System Manager users to list, add, edit and delete EAC/AA user accounts, and assign the users to the various user roles that are defined for EAC/AA.

2.5 Main Control Flows

The File Receipt (EFR) daemon process runs all the time. Its processing is initiated by the arrival of files from sources external to EAC/AA.

The Scheduler (ESC) daemon process runs all the time. Its processing is initiated by the submission of new rows to its base table.

The processes in the Load Standard Settlement Configuration (ESL) are initiated via the Scheduler (ESC) subsystem, after the Standard Settlement Configuration files have been detected by the File Receipt Manager (EFR).

The Processes in the Process Data Files (EPD) subsystem are initiated via the Scheduler (ESC) subsystem. In Automatic Mode this is directly after the Daily Profile Coefficient Load and EAC/AA and DMA Calculation Request data files have been detected by the File Receipt Manager (EFR). In Manual Mode there is an intermediate step in which the user selects the files to be processed.

The ERP Report Formatter is initiated the first time that a user requests to view a particular report produced in machine-readable format.

2.6 User Interface Overview

The user interface will be implemented using Oracle Applications Server Forms Services. The forms will be initiated by the menu system, which will be based on the functionality provided by the user driven subsystems of EAC/AA. Each user role will have a specific menu, the menu system for each of the user roles will provide access only to the specific forms associated with the activities of that user role within the EAC/AA system. Where two user roles have access to a form with differing privileges, the same form has been used and the privileges are controlled by the menu system i.e. provide access to the same form in read data only mode.

It should be noted that the Screen Behaviour sections of individual form definitions, although describing the form functionally, do assume a reasonable knowledge of using Oracle Forms.

The Enter Query, Execute Query and Cancel Query on the Toolbar are combined in one button. The button splits into two buttons when clicked on

to do Enter Query, one button representing Execute Query and the other Cancel Query. When the Cancel Query button is clicked, the two buttons are converted back into their original state.

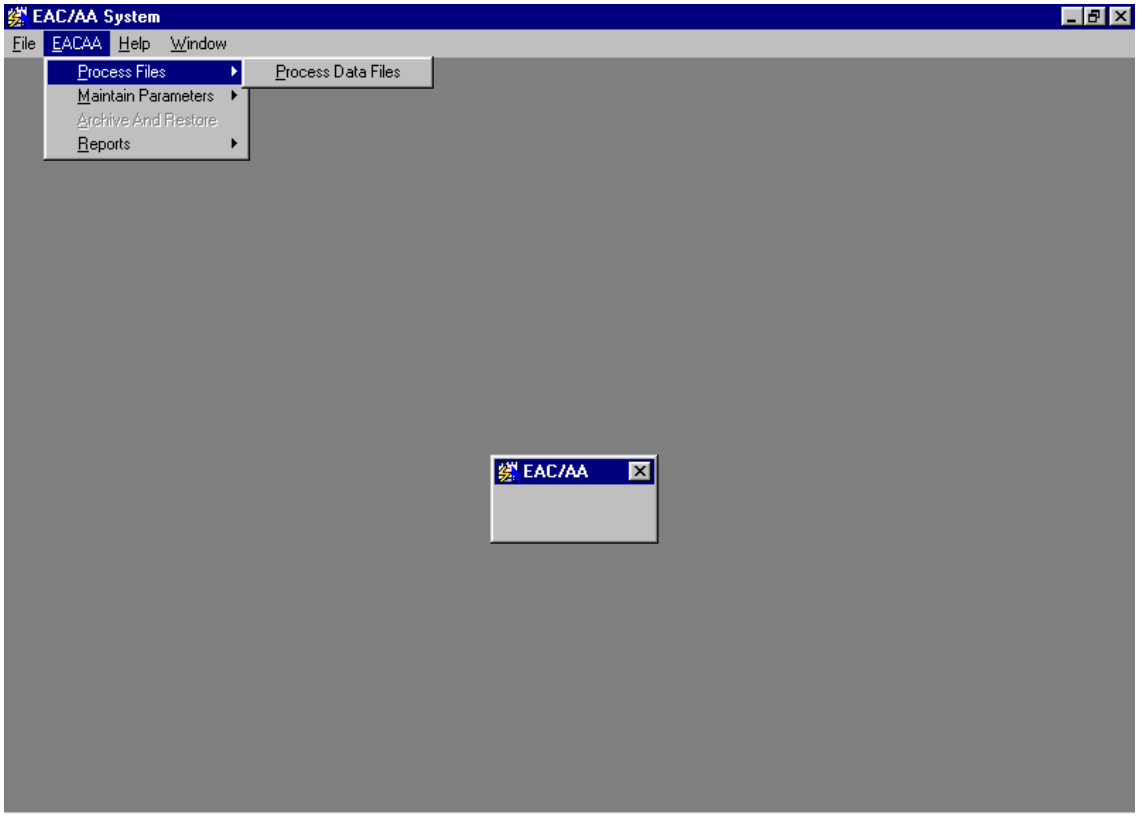
2.6.1 Menu Layout

The EAC/AA menu consists of a number of sub menus. Each of these represents a subsystem in the subsequent sections of the Physical Design.

In Oracle Forms, a menu must be anchored to a form. An inert umbrella form which has no functionality is used for this purpose.

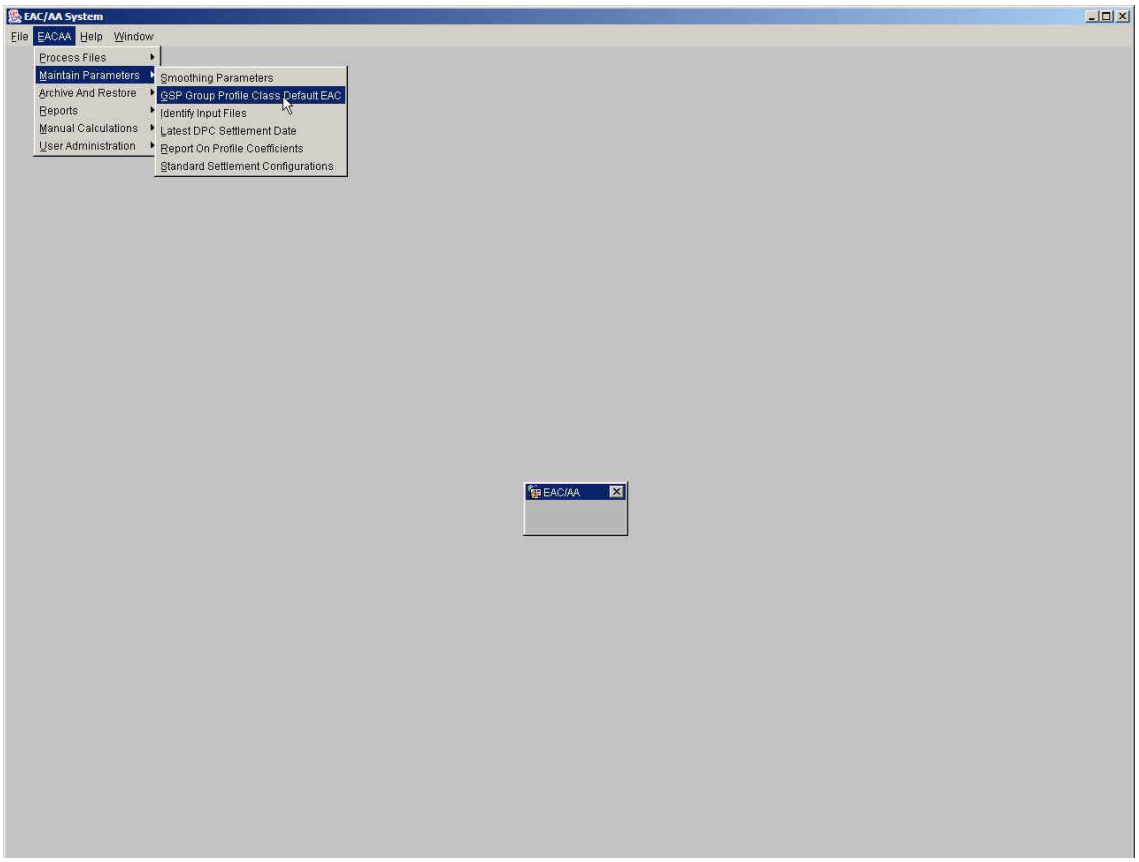
2.6.1.1 Process Data Files

This sub menu is concerned with the actual calculations that EAC/AA carries, through its normal operation. The options that can be selected are defined in the EPD subsystem.



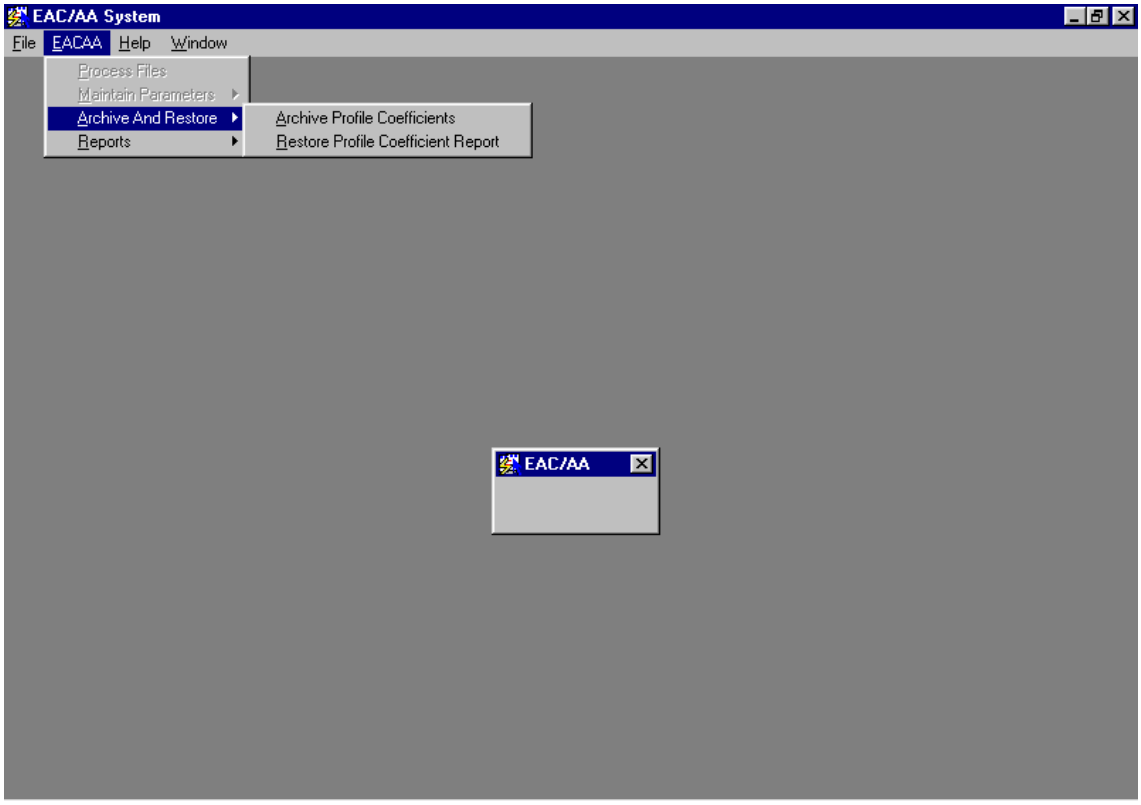
2.6.1.2 Maintain Parameters

This sub menu is concerned with the maintenance of and reporting on static data. The options that can be selected are defined in the ECP subsystem.



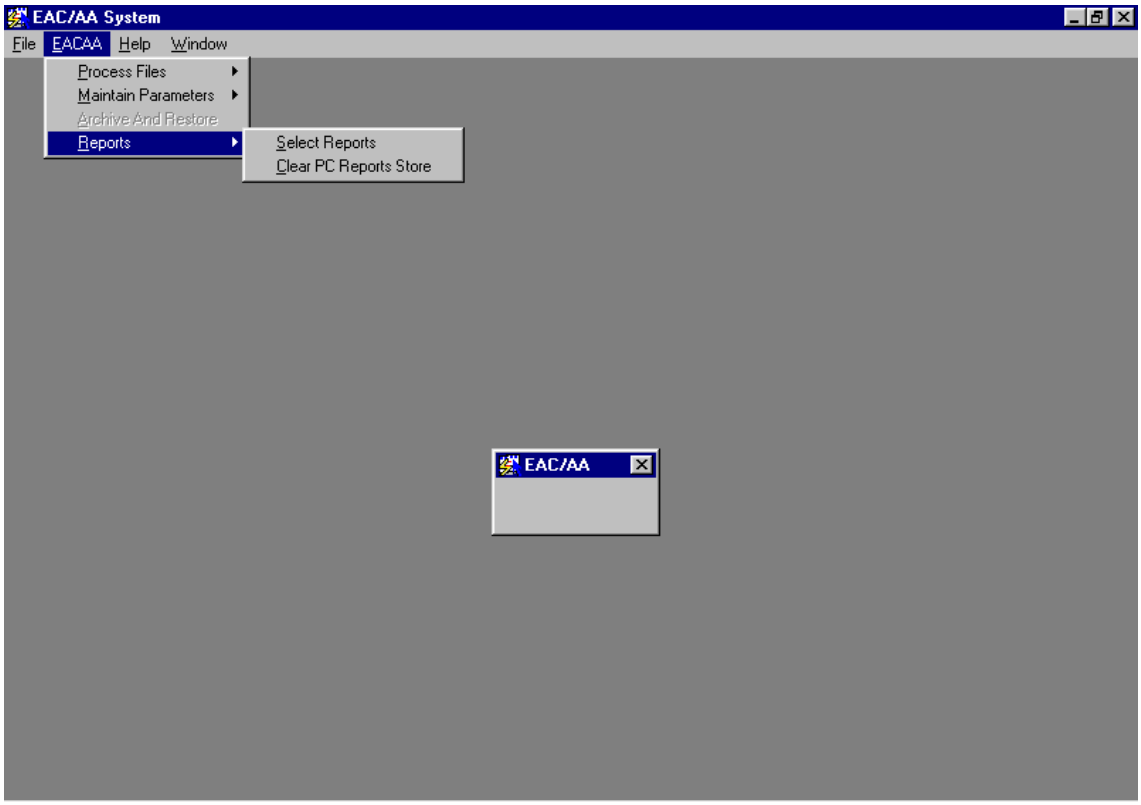
2.6.1.3 Archive and Restore

This sub menu is used to archive and restore Daily Profile Coefficients. The options that can be selected are defined in the EAR subsystem.



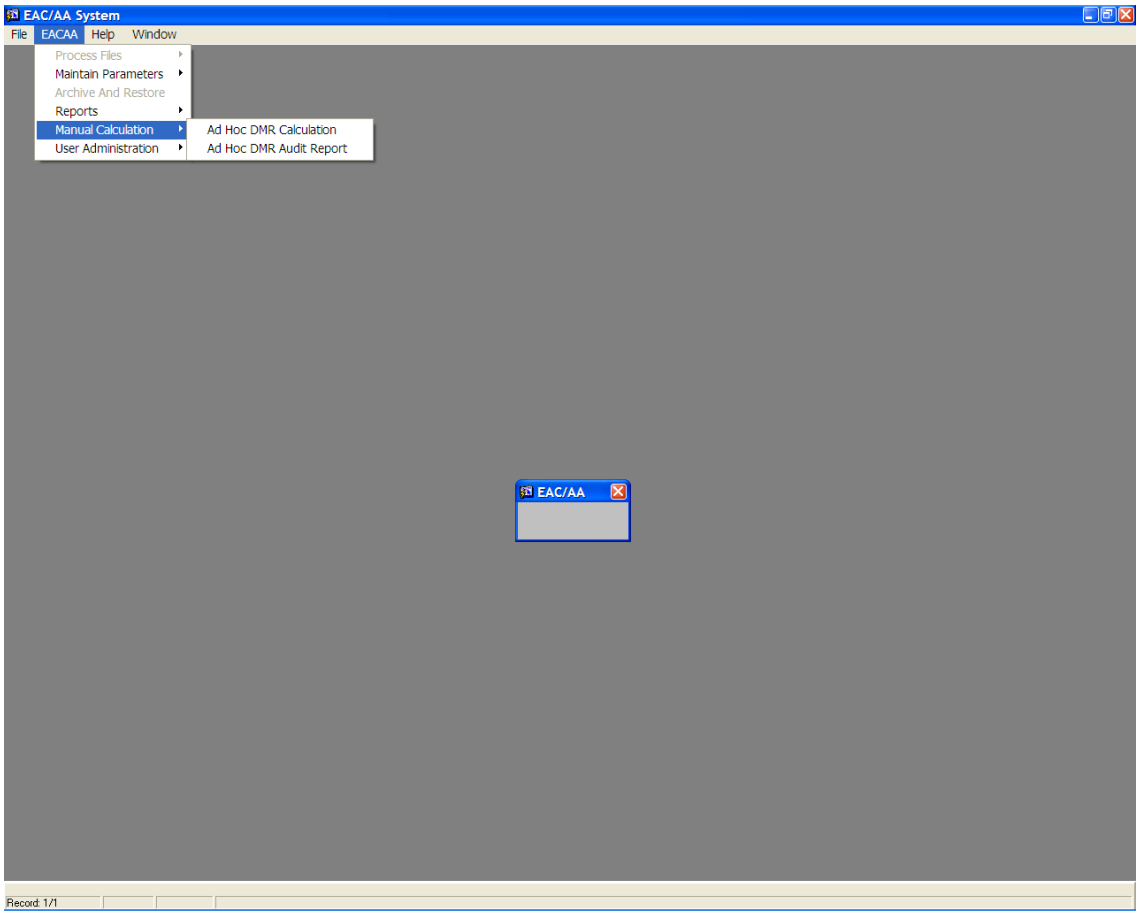
2.6.1.4 Reports

This sub menu is concerned with viewing reports. The options that can be selected are defined in the ERP subsystem.



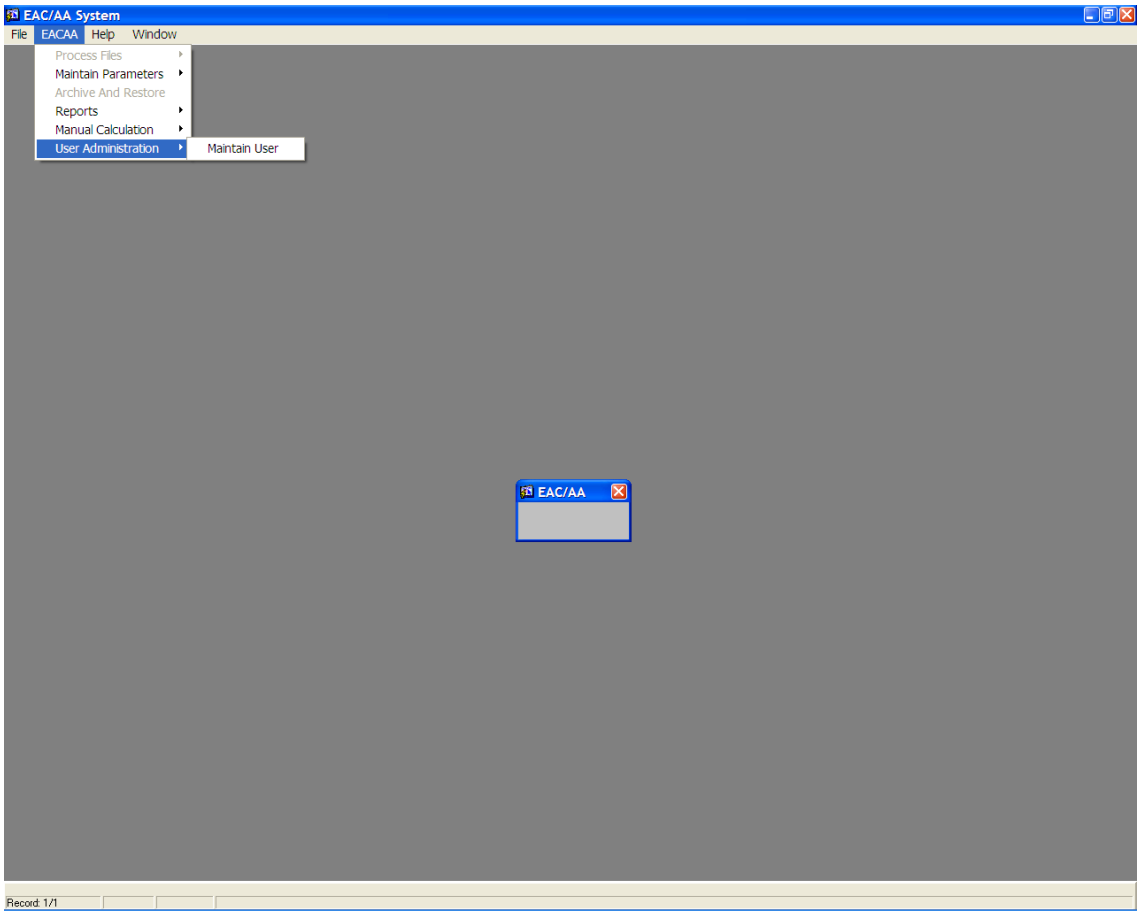
2.6.1.5 Ad-hoc Calculations

This sub menu is concerned with the Ad Hoc Deemed Meter Reading Calculation. The options that can be selected are defined in the EMC subsystem.



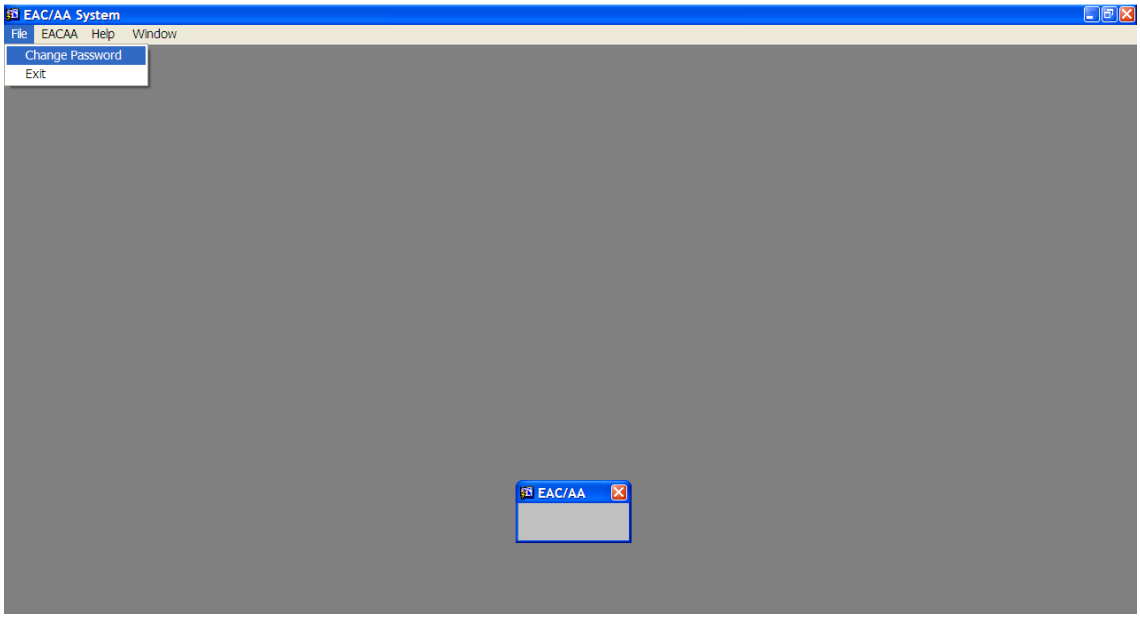
2.6.1.6 User Administration

This sub menu is concerned with user administration. The options that can be selected are defined in the EUA subsystem.



2.6.1.7 Change Password

This option is added to the File menu. It is defined in the EUA subsystem.



2.7 Database Overview

The Database Specifications section describes the details of the tables within the EAC/AA system derived from the logical design, it does not provide all the details of the physical implementation of the database.

The functionality within the EAC/AA system is based around maintenance and calculations using the single largest table in the physical model. Given the size and expected access requirement to edb_daily_profile_coefficients, the following options are being considered:

- Use of Hash keys for faster access, given that the full key access to edb_daily_profile_coefficients during the EAC/AA and Deemed Meter Advances calculations is expected.
- Use of table partitioning. This involves implementation of the table as several tables on different physical disks, containing data specific to a range of keys such as Settlement Date and/or GSP Groups. The table is then accessed from the user interface using an updateable view of the union of the data in all these tables. Given that the rows in edb_daily_profile_coefficients are deleted and inserted only by the background procedures within the EAC/AA system, the procedures maybe modified to take into account the partitioning of the table.

The physical implementation of the edb_daily_profile_coefficients table will depend on further benchmark tests that will be carried out to meet the desired performance.

2.8 Fallback, Backup and Recovery

2.8.1 Architectural features

The following hardware features affect the overall approach to backup, recovery and archive.

2.8.1.1 Use of RAID

There are a number of levels of Redundant Array of Inexpensive Disks (RAID) offering improved disk performance or greater resilience. Although the Technical Architecture Policy [TAP] recommended the use of RAID level 1, the physical design does not depend on the use of this, or any other, RAID level.

Since RAID level 1 has a generally neutral affect on performance (improving reads and slowing writes), its selection can be left as an operational decision based on the reliability of the chosen hardware and the operational costs of recovering from any failure.

Furthermore, given the large database size, RAID level 1 may be applied selectively to protect data which is more critical to retain or costly to recover thus reducing the overall cost of the operational hardware required.

2.8.1.2 Use of WORM drives

There are components of the data held by the system which are created and never updated or deleted, except possibly when transferred to archive media (eg: audit logs, files received or sent). Such files are candidates operationally, for holding on a Write-Once Read Many (WORM) media (eg: optical disks) - possibly in a juke-box arrangement.

Such media may (optionally) be selected as part of the operational hardware to simplify the daily backup and archive processing.

To provide for disaster recovery, some form of mirroring or copying of the WORM disks may be required with these copies then being moved off-site.

2.8.1.3 Database redo log

In all the following sections it is assumed that the Oracle database tables and redo logs are held on separate media. Thus, after any single media failure, the database can be recovered using a combination of the backup, redo logs and database.

Furthermore, if a redo log is lost due to media failure, the database is exposed to any further media failure until the next full backup. It is therefore advisable that the redo log is duplicated either by RAID 1 mirroring or by Oracle Redo log mirroring.

2.8.2 Backups

The principal mechanisms for backup and recovery are those provided by the Oracle database product. The EAC/AA system will be protected against hardware failures or corruption by the use of standard System backup and recovery procedures.

The backup and recovery strategy will be based around a weekly full off-line "cold" database backup and daily online "hot" backups. In an event of a database failure, the daily backups will be used to bring the database back to the consistent state of the time of the failure.

It is recognised that online backups have performance implications, so, manual backups will be considered if deemed more sensible.

The database will run in ARCHIVELOG mode which archives files of committed transactions, "redo logs", whilst the system is running. The "redo logs" since the last daily "hot" backup will need to be archived along with the physical files constituting the database. For the weekly "cold" database backups the physical files constituting the database will be archived.

The operating system backup and recovery facilities will also be used to prevent the loss of data through corruption or hardware failure. A weekly system backup of all the files changed since the last backup will be carried out in order to recreate a disk if a failure should occur.

A combination of Shell scripts and Oracle SQL scripts will be used to aid in the backup and restore processes.

2.8.3 Recovery

The following sections describe the range of failure scenarios from which the system may have to recover.

2.8.3.1 Power failure

This covers any interruption which causes all active processes to be terminated. This could be due to an interruption to the power supply or a failure of a system component (eg: CPU board failure).

When the system is restarted (with any failed component replaced), the Oracle database automatically recovers to the last committed transaction. Any uncommitted (user) transactions in progress will be rolled back (and will need to be repeated).

Any batch processing in progress at the time of failure is recovered as described in the following section.

File transmissions dealt with by the File Receipt Manager (EFR), that were in progress, will be cleaned up by the process itself.

2.8.3.2 Recovery from fatal errors

This covers interruption to an individual process due to a localised hardware failure or a fatal error during processing.

The state of the database will be automatically recovered to the state excluding the transactions (if any) that was in progress at the time of the error. Any files that were open will be closed. This leaves only the processing that was interrupted to be restarted.

In the event of one of the batch jobs being terminated, the job will be automatically rescheduled by the Scheduling process. For the calculation tasks of EAC and DMA, this only results in the result being produced twice. For the Profile Coefficient files, only one load is ever in progress at a single time. Resubmitting the load will result in it being reloaded if it is a Type 1 file and rejection if it is a Type 2 file. Restoring Archive Data and loading Standard Settlement Files also have no harmful effects from their processes being rescheduled. However, with Archive Daily Profiles, it is necessary for the process to clean itself up, once restarted. This is described in the specific subsystem.

2.8.3.3 Media (disk) failure

If the failed disk is one of a mirrored pair (ie: RAID 1 is used), then the system continues functioning normally. The failed disk can then be replaced and its contents recovered from the surviving partner. This section describes the case for media failure when not mirrored (either because there is no mirroring or where both elements of a pair fail).

The impacts of the media failure depend on the underlying data affected, each case is considered in turn below.

Operating System disks

The disk affected will be restored from the most recent backup. Any Operating System changes made since the last backup will need to be manually repeated - although taking a new backup would be recommended after any significant change anyway.

Database disks

The database tables affected can be recovered using a combination of the most recent backup and redo logs.

Redo log disks

The loss of the redo log disks (see section 2.8.1.3) does not immediately affect the integrity of the system, however it leaves the database at risk from a further failure. A backup of the database at the earliest opportunity is then recommended to ensure further changes are protected.

2.8.3.4 Total, unrecoverable failure of all media (disks).

Such a situation is generally related to a system "disaster" and recovery may well be carried out on an alternative machine or at an alternative site (depending on what disaster recovery plans are in place). To ensure that as much of the data as possible can be recovered from the backup, it is recommended that these are held in secure storage (eg: a fire safe). Furthermore, copies of older backups should be held off-site in case the on-site backups are damaged.

Recovery will be started from the latest backups available.

2.9 Error Handling

The procedures within the EAC/AA subsystem will individually handle the errors associated with their processing.

Where files are received from external sources by the EAC/AA system, the subsystem responsible for the file receipt will ensure that files will pass the first level of validation by checking the header, contents and footer. If files fail any of the checks carried out by this subsystem, they will not be allowed to enter the EAC/AA system for further processing.

Errors in file contents encountered by the subsystems responsible for loading and calculations will be reported as exceptions by the individual procedures.

Field validations and type format checks are carried out by the Oracle Forms at the user interface level. Error and warning messages will be presented in a standard format.

2.10 Security

In order to restrict and control access to the functionality provided by the EAC/AA system, the user roles defined in section 2 of the EAC/AA Function Definition and User Catalogue [EFUNDEF] will be used.

User Role	Job Title	Activities
EAC/AA System Operator (physical name eac_sys_operator)	Data Collector	• checking the electronic collection of daily profile data; • initiating EAC/AA system runs (Manual Mode only).
EAC/AA System Manager (physical name eac_sys_manager)	Data Collector	• creation and deletion of users, assigning of users to User Roles, and altering the status (locked/unlocked & expired/unexpired) of user accounts; • system monitoring for performance and capacity; • managing audit, security and control; • managing backup, recovery and archive.
EAC/AA System Auditor (physical name eac_sys_auditor)	Pool Auditor	The activities of this job include the following: • examining database data; • examining exception and run logs; • examining audit trails; • initiating the DMA Audit Report and examining the report, which gives details of Ad Hoc Deemed Meter Reading Calculations.
EAC/AA Operations Supervisor (physical name eac_ops_supservisor)	Data Collector	• monitoring and support of the operation of the system; • monitoring and support of the operation of the interfaces; • initiating Ad Hoc Deemed Meter Reading Calculations; • initiating the DMA Audit Report and examining the report, which gives details of Ad Hoc Deemed Meter Reading Calculations.

In Manual Mode, all the interaction with EAC/AA is achieved through the User Interface, with the exception of the Load Standard Settlement Configuration (ESL) subsystem. As a result, three levels of security will be provided at the User Interface level.

- The Operating System itself provide the first level of security. Users are maintained using the standard operating system features.
- Username/Password, the standard Oracle Username/Password validation, ensuring that the user is a valid EAC/AA user. Each Oracle user will be associated with an Oracle Role. These reflect the user roles used for menu/form access. These Oracle Roles will be granted varying privileges for Oracle objects, such as tables and views. Thus, a user will be restricted to accessing only the tables that are required for his normal mode of operation. Oracle users are maintained using standard Oracle facilities.
- Menu/User Role, each of the user roles will have specific menus, providing the necessary functionality related to the user role.

Each of the forms within the subsystem descriptions will indicate the user role(s) allowed to access them.

The access to the data files held within the EAC/AA system will be controlled using the standard Server facilities. The usernames and passwords will be defined for the users. User roles will be mapped to user groups and accesses to the directories and files will be assigned according to the user role privileges.

Background processes will connect to the Oracle database via an externally identified account. This means that the processes will need to be initiated by a privileged operating system user. This privileged user has an automatic connection to the database. Thus, it is not necessary to hold information about the Oracle connection in an INI file or in the code.

2.11 Operational Design

It is assumed that the EAC/AA online functionality will be provided during the normal working hours and that daily "cold" database backups will not be carried out if any of the background procedures are being executed by the Scheduler (ESC) subsystem.

The "cold" backups are assumed to be a weekly procedure, and that the daemon processes associated with the File Receipt Manager (EFR) and Scheduler (ESC) subsystem will also be shutdown prior to the start of the daily "cold" backup and restarted at the end of the database backup process.

Further housekeeping procedures take the form of archiving Daily Profile Coefficients, described in the EAR subsystem. This process prevents the database getting too large. Additionally, database tuning may be required, as the database gets larger. For database performance the ANALYSE Oracle utility will need to be run to support cost based optimisation.

When the Estimate Annual Consumption, Calculate Deemed Meter Advances and Load Daily Profile Coefficients functions are run, exception

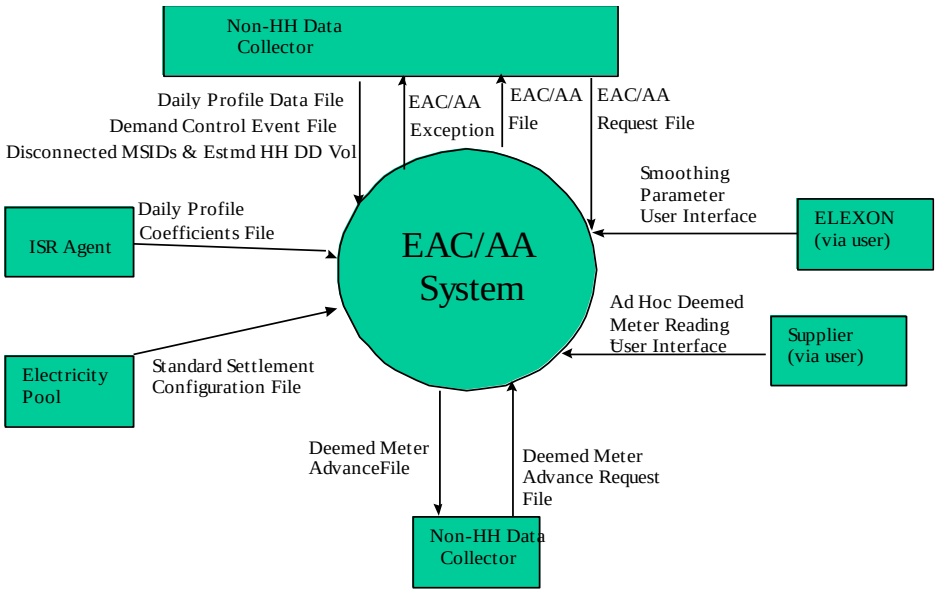
reports are output to the E_exception directory. Additionally, files that have failed to load will be placed in the E_reject directory. It is the responsibility of the user to check and maintain the contents of these directories.

The general running of the system will result in incoming files building up in the E_store directory and outgoing files building up in the E_files_out directories. Reports will also go into E_report. It is the responsibility of the user to check and maintain the contents of these directories. Manual procedures will be required to archive the files at periodic intervals.

3 Interface Specification

3.1 External Interfaces

3.1.1 General



The external interfaces to the EAC/AA system are either Files or User driven. Note that the only files which are shown are machine-readable files which are passed between EAC/AA and other computer systems. User Interfaces are External Interfaces when they are used to add new data, sourced from outside the system, to the system.

3.1.1.1 General File Principles

All records in all EAC/AA files start with a three character TEXT record code that describes the type of record.

Codes that start with the letter 'Z' indicate that it is a common record type. Thus, the standard footer code is 'ZPT'.

Within the record, all fields are separated by a delimiter character. This character is '|'.

If a field in a record is optional, the field itself is omitted from the record. This results in two delimiter characters being placed next to each other before the subsequent field follows. Additionally, the delimiter character itself is never included within a field.

The last field in a record is followed by a Line Feed character, rather than a delimiter.

In the file descriptions that follow, all fields that are not stated as OPTIONAL are considered mandatory.

If the file received contains extra fields, appended to the end of a record and those fields are not documented in the following section, EAC/AA will ignore the additional fields during processing.

3.1.1.2 Filenames

In order to conform to the POSIX standard of 14 character filenames, the following file naming convention is suggested:

- **Incoming Files** - These have unique filenames and are 14 characters or less.
- **Outgoing Files** - These are in the following format: <market participant role code><market participant id><9 digit internal sequence number>

For EAC/AA <market participant role code> is always 'D'.

<market participant id > is gained from the table EDB_SYSTEM_CONFIGURATION.

Example:

DXXXX123456789

3.1.1.3 Logical Data Type To Physical Data Type Mappings

Logical data type	**Physical Data Type**	**Comments**
CHAR(n)	TEXT(n)	A TEXT string implies the length of the string can vary. A CHAR string of n characters maps to a TEXT string of n characters. TEXT includes only a limited character set (NB not delimiting character) There should be no trailing spaces in the field (as all trailing spaces are stripped)
NUM (n,0)	INTEGER of n digits	There should be no leading spaces or zeros. There should be no trailing spaces. It is also optional that there is a sign, '-' immediately before the number.
NUM (x,y)	FLOATING POINT with a length of x digits and y decimal places	There should be no leading spaces or zeros. There should be no trailing spaces. If the figure is to an accuracy of 2 decimal places, and the figure has only zeros after the decimal point - these should be included. Additionally, there should always be at least one digit in front of the decimal point. It is also optional that there is a sign, '-' immediately before the number.
DATE	DATE	In format YYYYMMDD
TIME	TIME	In format HHMMSS
DATE/TIME	DATE/TIME	In format YYYYMMDDHHMMSS

3.1.1.4 Headers and Footers

The description of headers and footers is common to all the files sent to and from the EAC/AA system. All the EAC/AA input and output files have two header records, apart from the EAC/AA Exceptions File which has just the first header record . This section describes these formats.

Sections 3.1.2 - 3.1.9 and 3.2.3 describe each file type in turn. In those sections, the information given on header and footer records is additional information specific to each file type. Where a record or a field within the record is omitted from those sections, its description defaults to that given in this section.

3.1.1.4.1 Headers

The first record in every EAC/AA file is the common header record.

Field Name	**Field description**
Record Code	Always 'ZHD'
File Type	8 character TEXT field. This uniquely identifies the type and format version of the file. This will vary according to the type of EAC/AA file.

	The following two fields identify the Source Address - address of the sender
Market Participant Role Code	1 character TEXT field.
Market Participant Id	This uniquely identifies the market participant when combined with Market participant role code. This is a 4 character TEXT string.
	The following two fields identify the Target Address - address of the receiver
Market Participant Role Code	1 character TEXT field.
Market Participant Id	This uniquely identifies the market participant when combined with Market participant role code. This is a 4 character TEXT string.
File Creation Timestamp	DATE/TIME field for the file creation.

An example of this is:

ZHD|P0001001|G|FROM|B|TOOO|19970115170701<LF>

Some files contain a second header record which must follow the first in the file.

Field Name	**Field description**
Record Code	Always 'ZPD'
Settlement Date	OPTIONAL DATE field.
Settlement Code	OPTIONAL 2 character TEXT field.
	The following two fields identify the Run Detail.
Run Type Code	OPTIONAL 2 character TEXT field.
Run Number	OPTIONAL 7 digits INTEGER.
GSP Group Id	OPTIONAL 2 character TEXT field.

An example of this is:

ZPD|19970107|XX|B|1234567|AA<LF>

3.1.1.4.2 Footers

The last record in all files must be a footer. The format of this is as follows:

Field Name	**Field description**
Record Code	Always 'ZPT'
Record Count	INTEGER(10). Count of all records in the file including headers and footer.
Checksum	INTEGER(10). Checksum for all records in

	the file, apart from the footer.

An example of this is:

ZPT|199|67676769<LF>

3.1.2 External Interface Daily Profile Coefficient File

The Daily Profile Coefficients are transferred to the EAC/AA system via a file interface. The Daily Profile Coefficient files are supplied by the ISR Agent.

If the system has been installed to operate in Manual Mode, the actual load process is initiated internally by the user via a user interface form. The user is presented with a list of unprocessed Daily Profile Coefficient files and is allowed to either select one file or load all the valid files. Once the selection has been made, a batch job is initiated to load the Daily Profile Coefficients contained in the selected file(s). These files may have been received by the system from more than one ISR Agent.

If the system has been installed to operate in Automatic Mode, the load process is initiated automatically by the File Receipt Manager upon receipt and successful validation of the Daily Profile Coefficient files.

The contents of the Daily Profile Coefficient file follows the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = ‘D0039001’

Market Participant Role Code (Source Address) = ‘G’

Market Participant Role Code (Target Address) = ‘D’

ZPD Record

Run Type Code = ‘B’

Settlement Date - this must be present

Run Number - this number must be present to enable new files to be checked against old.

GSP Group Id - this field is omitted only when if replacing all Daily Profile Coefficients for the settlement date.

The Data Section of the file has the following structure of records:

GSP

PCI

SCI

DPC

Note: Indentations indicate iterating groups.

RECORD GSP	
Field Name	**Field description**
Record Code	= 'GSP'
GSP Group Id	2 character TEXT field.

RECORD PCI	
Field Name	**Field description**
Record Code	= 'PCI'
Profile Class Id	2 digit INTEGER field.

RECORD SCI	
Field Name	**Field description**
Record Code	= 'SCI'
Standard Settlement Configuration Id	4 character TEXT field.

RECORD DPC	
Field Name	**Field description**
Record Code	= 'DPC'
Time Pattern Regime Id	5 character TEXT field
Daily Profile Coefficient	FLOATING POINT with a length of 14 digits and 13 decimal places

3.1.3 External Interface EAC/AA Request File

The EAC/AA Calculation Request Files are transferred to the EAC/AA system via a file interface. These files are supplied by the Non-HH Data Collector.

If the system has been installed to operate in Manual Mode, the actual calculation process is initiated internally by the user via a user interface form. The user is presented with a list of unprocessed EAC/AA Calculation Request files and is allowed to select one file. Once the selection has been made, a batch job is initiated to calculate the EAC/AA values for the parameters contained within the selected file.

If the system has been installed to operate in Automatic Mode, the calculation process is initiated automatically by the File Receipt Manager upon receipt and successful validation of the EAC/AA Calculation Request files.

The contents of the EAC/AA Request file follows the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'PERQ_001'

Market Participant Role Code (Source Address) = 'D'

Market Participant Role Code (Target Address) = 'D'

The Data Section of the file has the following structure of records:

MSI

PCI

GSP

SRD

Note: Indentations indicate iterating groups.

RECORD MSI	
Field Name	**Field description**
Record Code	='MSI'
Metering System Id	13 digit INTEGER field.
Standard Settlement Configuration Id	4 character TEXT field.
Effective From Settlement Date{EAC}	DATE field.
Effective From Settlement Date{MAC}	DATE field.
Effective To Settlement Date{MAC}	DATE field.

RECORD PCI	
Field Name	**Field description**
Record Code	='PCI'
Profile Class Id	2 digit INTEGER field.
Effective From Settlement Date{MSPC}	DATE field.

RECORD GSP	
Field Name	**Field description**
Record Code	='GSP'
GSP Group Id	2 character TEXT field.
Effective From Settlement Date{MSGG}	DATE field.

RECORD SRD	
Field Name	**Field description**
Record Code	='SRD'
Time Pattern Regime Id	5 character TEXT string.
Estimated Annual Consumption	FLOATING POINT with a length of 12 digits and 1 decimal place.
Meter Advance	FLOATING POINT with a length of 8 digits and 1 decimal place.

3.1.4 External Interface EAC/AA File

The results of the EAC/AA calculations are passed onto the Non-HH Data Collector via the file interface. The file containing the results of the batch process initiated by the EAC/AA user follows the general data file format specified in the [EACAAURS].

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'PEEX_001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

ZPD Record

Run Type Code - Not populated.

Settlement Date - Not populated.

Settlement Code - Not populated.

Run Number - Not populated.

GSP Group Id - Not populated.

The record structure of the Data Section is shown below, the details are repeated for all the Metering Systems contained in the EAC/AA Request File described in section 3.1.3.

MSI

EAC

Note: Indentations indicate iterating groups.

RECORD MSI	
Field Name	**Field description**
Record Code	='MSI'
Metering System Id	13 digit INTEGER field.
Standard Settlement Configuration Id	4 character TEXT field.
Effective From Settlement Date{EAC}	OPTIONAL DATE field.
Effective From Settlement Date{MAC}	DATE field.
Effective To Settlement Date{MAC}	DATE field.

RECORD EAC	
Field Name	**Field description**
Record Code	='EAC'
Time Pattern Regime Id	5 character TEXT string.
Annualised Advance	FLOATING POINT with a length of 12 digits and 1 decimal place.
Estimated Annual Consumption	OPTIONAL FLOATING POINT with a length of 12 digits and 1 decimal place.

3.1.5 External Interface EAC/AA Exceptions Report

Any exceptions reported from the EAC/AA calculations are passed onto the Non-HH Data Collector via the file interface.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'L0041001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

This file has no ZPD record.

The record structure of the Data Section is shown below. There is one MEX record for each exception reported:

RUN

MEX

CNT

If there are no exceptions, the file is produced with no MEX records.

RUN Record

RECORD RUN	
Field Name	**Field description**
Record Code	='RUN'
User Id	30 character TEXT field, the username of

	the user who invoked the calculation, read from the edb_jobs database table.
Input Filename	14 character TEXT field, the name of the EAC/AA Request File (file type PERQ_001)
Output Filename	14 character TEXT field, the name of the EAC/AA Output File (file type PEEX_001)

RECORD MEX	
Field Name	**Field description**
Record Code	='MEX'
Metering System Id	13 digit INTEGER field. The Metering System for which the exception is being recorded.
Reason Code	3 character TEXT field. A code representing the reason for the exception
Effective From Settlement Date{MAC}	DATE field. The start date of the Meter Advance Period to which the Meter Advance used in the calculation applies.
Effective To Settlement Date{MAC}	DATE field. The end date of the Meter Advance Period to which the Meter Advance used in the calculation applies.
Reason Details	256 character TEXT field. Details of the reason.

RECORD CNT	
Field Name	**Field description**
Record Code	='CNT'
Exception Count	8 digit INTEGER field. The number of Metering Systems for which exceptions were reported.

3.1.6 External Interface EAC/AA Tolerance Value Exceptions Report

Any Annualised Advances reported by the EAC/AA calculations which are outside the appropriate Annualised Advance Tolerance Values are passed onto the Non-HH Data Collector via the file interface.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'L0042001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

This file has no ZPD record.

The record structure of the Data Section is shown below. There is one MEX record for each exception reported:

RUN

MEX

CNT

If there are no exceptions, the file is produced with no MEX records.

RUN Record

RECORD RUN	
Field Name	**Field description**
Record Code	='RUN'
User Id	30 character TEXT field, the username of the user who invoked the calculation, read from the edb_jobs database table.
Input Filename	14 character TEXT field, the name of the EAC/AA Request File (file type PERQ_001)
Output Filename	14 character TEXT field, the name of the EAC/AA Output File (file type PEEX_001)

RECORD MEX	
Field Name	**Field description**
Record Code	='MEX'
Metering System Id	13 digit INTEGER field. The Metering System for which the exception is being recorded.
Annualised Advance	FLOATING POINT with a length of 12 digits and 1 decimal place.
Meter Advance	FLOATING POINT with a length of 8 digits and 1 decimal place.
Effective From Settlement Date{MAC}	DATE field. The start date of the Meter Advance Period to which the Meter Advance used in the calculation applies.
Effective To Settlement Date{MAC}	DATE field. The end date of the Meter Advance Period to which the Meter Advance used in the calculation applies.

Profile Class Id	2 digit INTEGER field.
Standard Settlement Configuration Id	4 character TEXT field.
Time Pattern Regime Id	5 character TEXT string.
High Annualised Advance Tolerance Value	12 digit INTEGER field. The high value of the Annualised Advance Tolerance Value.
Low Annualised Advance Tolerance Value	12 digit INTEGER field. The low value of the Annualised Advance Tolerance Value.

RECORD CNT	
Field Name	**Field description**
Record Code	=’CNT’
Exception Count	8 digit INTEGER field. The number of exceptions reported.

3.1.7 External Interface Deemed Meter Advance Request File

The Deemed Meter Advance Calculation Request Files are transferred to the EAC/AA system via a file interface. These files are supplied by the Non-HH Data Collector.

If the system has been installed to operate in Manual Mode, the actual calculation process is initiated internally by the user via a user interface form. The user is presented with a list of unprocessed Deemed Meter Advance files and is allowed to select one file. Once the selection has been made, a batch job is initiated to calculate the Deemed Meter Advance values for the parameters contained within the selected file.

If the system has been installed to operate in Automatic Mode, the calculation process is initiated automatically by the File Receipt Manager upon receipt and successful validation of the Deemed Meter Advance Calculation Request files.

The contents of the Deemed Meter Advance Request file follows the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = ‘PDRQ_001’

Market Participant Role Code (Source Address) = ‘D’

Market Participant Role Code (Target Address) = ‘D’

The record structure of the Data Section is shown below. The details are repeated for all the Metering Systems contained in the Deemed Meter Advance Request File.

MSI

PCI

GSP

EAA

Note: Indentations indicate iterating groups.

RECORD MSI	
Field Name	**Field description**
Record Code	=‘MSI’
Metering System Id	13 digit INTEGER field.
Standard Settlement Configuration Id	4 character TEXT field.
Effective From Settlement Date{DMA}	DATE field.
Effective To Settlement Date{DMA}	DATE field.

RECORD PCI	
Field Name	**Field description**
Record Code	=‘PCI’
Profile Class Id	2 digit INTEGER field.
Effective From Settlement Date{MSPC}	DATE field.

RECORD GSP	
Field Name	**Field description**
Record Code	=‘GSP’
GSP Group Id	2 character TEXT field.
Effective From Settlement Date{MSGG}	DATE field.

RECORD EAA	
Field Name	**Field description**
Record Code	=‘EAA’
Time Pattern Regime Id	5 character TEXT string.
EAC or AA	FLOATING POINT with a length of 12 digits and 1 decimal place. This is populated from either Estimated Annual Consumption or Annualised Advance.

3.1.8 External Interface Deemed Meter Advance File

The results of the Deemed Meter Advance calculations are passed onto the Non-HH Data Collector via the file interface. The file containing the results of the batch process initiated by the EAC/AA user follows the general data file format specified in the [EACAAURS].

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'PDEX_001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

ZPD Record

Run Type Code - Not populated.

Settlement Date - Not populated.

Settlement Code - Not populated.

Run Number - Not populated.

GSP Group Id - Not populated.

The record structure of the Data Section is shown below, the details are repeated for all the Metering Systems contained in the Deemed Meter Advance Request File described in section 3.1.5.

MSI

DMA

Note: Indentations indicate iterating groups.

RECORD MSI	
Field Name	**Field description**
Record Type	='MSI'
Metering System Id	13 digit INTEGER field.
Standard Settlement Configuration Id	4 character TEXT field.
Effective From Settlement Date{DMA}	DATE field.

Effective To Settlement Date{DMA}	DATE field.

RECORD DMA	
Field Name	**Field description**
Record Type	='DMA'
Time Pattern Regime Id	5 character TEXT string.
Deemed Meter Advance	FLOATING POINT with a length of 12 digits and 1 decimal place.

3.1.9 External Interface Standard Settlement Configuration File

The Standard Settlement Configurations are transferred to the EAC/AA system via a file interface. The Standard Settlement Configuration files are supplied by the Market Domain Data Agent and the actual load process is initiated automatically as soon as the presence of such a file is detected. Once the presence of the file is established by the EAC/AA system, a batch process will be initiated to load the Standard Settlement Configurations and Average Fractions of Yearly Consumption contained in that file.

The contents of the Standard Settlement Configuration file follow the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'D0227001'

The record structure of the Data Section is shown below. The details are repeated for all Standard Settlement Configurations. The loader ignores the TPR group, taking the Time Pattern Regime from the AFD group.

SCI

TPR

VSD

ASD

AFD

RECORD SCI	
Field Name	**Field description**
Record Type	='SCI'
Standard Settlement Configuration Id	4 character TEXT field.

Standard Settlement Configuration Description	50 character TEXT string.

RECORD TPR	
Field Name	**Field description**
Record Type	='TPR'
Time Pattern Regime	5 character TEXT field.

RECORD VSD	
Field Name	**Field description**
Record Type	='VSD'
Profile Class Id	2 character INTEGER field.
Effective From Settlement Date	DATE field.
Effective To Settlement Date	DATE field.

RECORD ASD	
Field Name	**Field description**
Record Type	='ASD'
GSP Group Id	2 character TEXT field.
Effective From Settlement Date	DATE field.
Effective To Settlement Date	DATE field.

RECORD AFD	
Field Name	**Field description**
Record Type	='AFD'
Average Fraction of Yearly Consumption	FLOATING POINT with a length of 7 digits and 6 decimal places.
Time Pattern Regime	5 character TEXT string.

3.1.10 Smoothing Parameter User Interface

Smoothing Parameter data is sent manually from ELEXON embedded within a loader script to the Non-HH Data Collector. The data is maintained by the EAC/AA users via the user interface form ECP_SSP. The Smoothing Parameter details are used in the calculations of EAC/AA.

The EAC/AA user is allowed to enter new, amend or delete existing Smoothing Parameters. When entering new Smoothing Parameters the following values will need to be specified:

- Smoothing Parameter

- Effective From Settlement Date {SPAR}

When amending the existing Smoothing Parameters, only the following data may be amended for a given Smoothing Parameter:

- Smoothing Parameter

When deleting an existing Smoothing Parameter, the data may be deleted by specifying:

- Effective From Settlement Date {SPAR}

The details of the ECP_SSP form are specified in section 6.6.1.

3.1.11 Ad Hoc Deemed Meter Reading User Interface

Requests for an Ad Hoc Deemed Meter Reading are sent manually from a Supplier to the Non-HH Data Collector and are then entered into the EAC/AA system by the users via the user interface form EMC_IDM. EAC/AA uses the data entered via the user interface to perform the calculations required and return the result to the user.

The following values are entered on the form:

- Metering System Id
- SSC Id
- GSP Group Id
- Deemed Reading Date
- 1st Meter Reading Date
- 2nd Meter Reading Date

and for each Profile Class to which the Metering System is assigned:

- Profile Class Id
- Effective From Settlement Date {MSPC}

and for each register for which a calculation is required:

- Time Pattern Regime Id
- Register Id (optional)
- Number of Register Digits
- 1st Meter Reading
- 2nd Meter Reading
- Negative Advance Rollover (whether a negative advance is caused by a rollover)

The details of the EMC_IDM form are specified in section 12.5.1.

3.1.12 GSP Group Profile Class Default EAC User Interface

GSP Group Profile Class Default EAC data is sent manually from ELEXON embedded within a loader script to the Non-HH Data Collector. The data is browsed by the EAC/AA users via the user interface form ECP_GPD. The GSP Group Profile Class Default EAC details are used in the calculations of EACs where the EAC has been initially calculated as negative.

The EAC/AA user is only allowed to browse GSP Group Profile Class Default EAC records.

The details of the ECP_GPD form are specified in section6.6.7.

3.1.13 External Interface Demand Control Event File

The Demand Control Events are transferred to the EAC/AA system via a file interface. The Demand Control Event files are supplied by the Distributors.

If the system has been installed to operate in Automatic Mode, the load process is initiated automatically by the File Receipt Manager upon receipt and successful validation of the Demand Control Event files.

If the system has been installed to operate in Manual Mode, the actual load process is initiated internally by the user via a user interface form. The user is presented with a list of unprocessed Demand Control Event files and is allowed to select one file. Once the selection has been made, a batch job is initiated to load the Demand Control Event data.

The contents of the Demand Control Event file follow~~s~~ the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = ‘P0238001’

Market Participant Role Code (Source Address) = ‘R~~D~~ ’

Market Participant Role Code (Target Address) = ‘-D’

Run Type Code = Not Populated

Settlement Date - this must be present

Run Number - this number must be present to enable new files to be checked against old.

The Data Section of the file has the following structure of records:

DCE

MSI

RECORD DCE	
Field Name	**Field description**
Record Code	= 'DCE'
Demand Control Event ID	30 character TEXT field.
Start Date and Time	DATE field.
End Date and Time	DATE field.
RECORD DCE	
Field Name	**Field description**
Record Code	= 'DCE'
Demand Control Event ID	30 character TEXT field.
Start Date and Time	DATE field.
End Date and Time	DATE field.

RECORD MSI	
Field Name	**Field description**
Record Code	= 'MSDI'
Metering System Id	13 digit INTEGER field.

3.1.14 External Interface Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volume File

~~External Interface Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volume File~~

The External –Interface Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volume details are transferred to the EAC/AA system via a file interface. The Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volume files are supplied by the N~~SVAA/~~HHDC.

If the system has been installed to operate in Automatic Mode, the load process is initiated automatically by the File Receipt Manager upon receipt and successful validation of the –Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volume files.

If the system has been installed to operate in Manual Mode, the actual load process is initiated internally by the user via a user interface form. The user is presented with a list of unprocessed files and is allowed to select one file. Once the selection has been made, a batch job is initiated to load the data.

The contents of the Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volume file follows the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = ‘D0375001’

Market Participant Role Code (Source Address) = ‘G~~D~~’

Market Participant Role Code (Target Address) = ‘D~~-~~’

The Data Section of the file has the following structure of records:

DCE

MSI

SDT

HHP

RECORD DCE	
Field Name	**Field description**
Record Code	= 'DCE'
Demand Control Event ID	30 character TEXT field.
Start Date and Time	DATE field.
End Date and Time	DATE field.

RECORD MSI	
Field Name	**Field description**
Record Code	= 'MSI'
Metering System Id	13 digit INTEGER field.
Measurement Quantity ID	13 digit INTEGER field.
Supplier ID	4 character TEXT field.

RECORD SDT	
Field Name	**Field description**
Record Code	= 'SDT'
Settlement Date	DATE field.

RECORD HHP	
Field Name	**Field description**
Record Code	= 'HHP'
Estimated HH Demand Side Action Volume	4 character TEXT field.

3.1.15 External Interface Daily Profile Data Report File

The External Interface Daily Profile Data Report details are transferred to the EAC/AA system via a file interface. The Daily Profile Data Report are supplied by the SVAA

If the system has been installed to operate in Automatic Mode, the load process is initiated automatically by the File Receipt Manager upon receipt and successful validation of the Daily Profile Data Report files.

If the system has been installed to operate in Manual Mode, the actual load process is initiated internally by the user via a user interface form. The user is presented with a list of unprocessed Daily Profile Data files and is allowed to select one file. Once the selection has been made, a batch job is initiated to load the Daily Profile Data.

The contents of the Daily Profile Data Report file follow~~s~~ the general Data File format given.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'D0018001'

Market Participant Role Code (Source Address) = 'G~~-~~'

Market Participant Role Code (Target Address) = 'D~~X -~~'

Run Type Code = 'B '

Settlement Date - this must be present

~~Run Number - this number must be present to enable new files to be checked against old.~~

The Data Section of the file has the following structure of records:

SDT

HDR

GSP

PCL

PFL

BPP

SSC

CPP

VMR

PPC

RECORD RDT	
Field Name	**Field description**
Record Code	= 'RDT'
User Name	8 character TEXT field.
Report Parameters	30 character TEXT field.
Report Parameters	30 character TEXT field.

~~**RECORD HDR**~~	
~~**Field Name**~~	~~**Field description**~~
~~Record Code~~	~~= 'HDR'~~
~~Profile Production Date~~	~~DATE field.~~
~~Profile Production Time~~	~~time~~

~~**RECORD GSP**~~	
~~**Field Name**~~	~~**Field description**~~
~~Record Code~~	~~= 'GSP'~~
~~GSP Group Id~~	~~2 character TEXT field.~~
~~Actual Noon Temperature~~	~~FLOATING POINT with a length of 4 digits and 1 decimal places~~
~~Noon Effective Temperature~~	~~FLOATING POINT with a length of 4 digits and 1 decimal places~~
~~Time of Sunset~~	~~time~~
~~Sunset Variable~~	~~5 character TEXT field.~~

~~RECORD PCL~~	
~~Field Name~~	~~Field description~~
~~Record Code~~	~~= 'PCL'~~
~~Profile Class Id~~	~~2 digit INTEGER field.~~

RECORD HDR	
Field Name	**Field description**
Record Code	= 'HDR'
Profile Production Date	DATE field.
Profile Production Time	time

RECORD PCL	
Field Name	**Field description**
Record Code	= 'PCL'
Profile Class Id	2 digit INTEGER field.

RECORD GSP	
~~RECORD PFL~~ ~~Field Name~~	**Field description**
~~Field Name~~ Record Code	~~Field description~~ GSP
~~Record Code~~ GSP Group Id	~~= 'PFL'~~ 2 character TEXT field.
~~Profile Class Id~~ Actual Noon Temperature	~~2 digit INTEGER field.~~ FLOATING POINT with a length of 4 digits and 1 decimal places
Noon Effective Temperature	FLOATING POINT with a length of 4 digits and 1 decimal places
Time of Sunset	time
Sunset Variable	5 character TEXT field.

RECORD PFL	
Field Name	**Field description**
Record Code	= 'PFL'
Profile Class Id	2 digit INTEGER field.

RECORD BPP	
Field Name	**Field description**
Record Code	= 'BPP'
Profile Class Id	2 digit INTEGER field.
Period Profile Coefficient Value (Settlement Period 01)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 02)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 03)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 04)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 05)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 07)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 08)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 09)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 10)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 11)	FLOATING POINT with a length of 14 digits and 13 decimal places

Field Name	Field description
Period Profile Coefficient Value (Settlement Period 12)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 13)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 14)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 15)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 16)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 17)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 18)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 19)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 20)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 21)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 22)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 23)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 24)	FLOATING POINT with a length of 14 digits and 13 decimal places

~~Field Name~~	~~Field description~~
Period Profile Coefficient Value (Settlement Period 25)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 26)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 27)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 28)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 29)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 30)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 31)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 32)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 33)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 34)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 35)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 36)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 37)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 38)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 39)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 40)	FLOATING POINT with a length of 14 digits and 13 decimal places

Field Name	Field description
Period Profile Coefficient Value (Settlement Period 41)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 42)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 43)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 44)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 45)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 46)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 47)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 48)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 49)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Profile Coefficient Value (Settlement Period 50)	FLOATING POINT with a length of 14 digits and 13 decimal places

RECORD SSC	
Field Name	**Field description**
Record Code	= 'SSC'
Standard Settlement Configuration Id	4 character TEXT field.

RECORD CPP	
Field Name	**Field description**
Record Code	= 'CPP'
Low Register Profile Coefficient (Settlement Period 01)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 01)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 02)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 02)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 03)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 03)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 04)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 04)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 05)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 05)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 06)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 06)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 07)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 07)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 08)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 08)	LOATING POINT with a length of 14 digits and 13 decimal places

Field Name	Field description
Low Register Profile Coefficient (Settlement Period 09)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 09)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 10)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 10)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 11)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 11)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 12)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 12)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 13)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 13)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 14)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 14)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 15)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 15)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 16)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 16)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 17)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 17)	LOATING POINT with a length of 14 digits and 13 decimal places

~~Field Name~~	~~Field description~~
Low Register Profile Coefficient (Settlement Period 18)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 18)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 19)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 19)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 20)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 20)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 21)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 21)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 22)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 22)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 23)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 23)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 24)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 24)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 25)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 25)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 26)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 26)	LOATING POINT with a length of 14 digits and 13 decimal places

~~Field Name~~	~~Field description~~
Low Register Profile Coefficient (Settlement Period 27)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 27)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 28)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 28)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 29)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 29)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 30)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 30)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 31)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 31)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 32)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 32)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 33)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 33)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 34)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 34)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 35)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 35)	LOATING POINT with a length of 14 digits and 13 decimal places

~~Field Name~~	~~Field description~~
Low Register Profile Coefficient (Settlement Period 36)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 36)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 37)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 37)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 38)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 38)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 39)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 39)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 40)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 40)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 41)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 41)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 42)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 42)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 43)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 43)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 44)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 44)	LOATING POINT with a length of 14 digits and 13 decimal places

Field Name	Field description
Low Register Profile Coefficient (Settlement Period 45)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 45)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 46)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 46)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 47)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 47)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 48)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 48)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 49)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 49)	LOATING POINT with a length of 14 digits and 13 decimal places
Low Register Profile Coefficient (Settlement Period 50)	FLOATING POINT with a length of 14 digits and 13 decimal places
Normal Register Profile Coefficient (Settlement Period 50)	LOATING POINT with a length of 14 digits and 13 decimal places

RECORD VMR	
Field Name	**Field description**
Record Code	= ‘VMR’
Time Pattern Regime Id	5 character TEXT field.

RECORD PPC	
Field Name	**Field description**
Record Code	= 'PPC'
Period Profile Coefficient Value (Settlement Period 01)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 01)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 02)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 02)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 03)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 03)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 04)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 04)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 05)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 05)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 06)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 06)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 07)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 07)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 08)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 08)	BOOLEAN

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Field Name	Field description
Period Profile Coefficient Value (Settlement Period 09)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 09)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 10)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 10)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 11)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 11)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 12)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 12)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 13)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 13)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 14)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 14)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 15)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 15)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 16)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 16)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 17)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 17)	BOOLEAN

~~Field Name~~	~~Field description~~
Period Profile Coefficient Value (Settlement Period 18)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 18)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 19)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 19)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 20)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 20)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 21)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 21)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 22)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 22)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 23)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 23)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 24)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 24)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 25)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 25)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 26)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 26)	BOOLEAN

~~Field Name~~	~~Field description~~
Period Profile Coefficient Value (Settlement Period 27)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 27)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 28)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 28)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 29)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 29)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 30)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 30)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 31)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 31)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 32)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 32)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 33)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 33)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 34)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 34)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 35)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 35)	BOOLEAN

~~Field Name~~	~~Field description~~
Period Profile Coefficient Value (Settlement Period 36)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 36)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 37)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 37)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 38)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 38)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 39)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 39)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 40)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 40)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 41)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 41)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 42)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 42)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 43)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 43)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 44)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 44)	BOOLEAN

~~Field Name~~	~~Field description~~
Period Profile Coefficient Value (Settlement Period 45)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 45)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 46)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 46)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 47)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 47)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 48)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 48)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 49)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 49)	BOOLEAN
Period Profile Coefficient Value (Settlement Period 50)	FLOATING POINT with a length of 14 digits and 13 decimal places
Period Register On State Indicator (Settlement Period 50)	BOOLEAN

3.1.16 External Interface Demand Control Event Exceptions Report

Any exceptions reported while loading the Demand Control Event file are passed onto the Non-HH Data Collector via the file interface.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = ‘L0045001’

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = ‘D’

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

This file has no ZPD record.

The record structure of the Data Section is shown below. There is one MEX record for each exception reported:

RUN

MEX

CNT

If there are no exceptions, the file is produced with no MEX records.

RUN Record

RECORD RUN	
Field Name	**Field description**
Record Code	='RUN'
User Id	30 character TEXT field, the username of the user who invoked the calculation, read from the edb_jobs database table.
Input Filename	14 character TEXT field, the name of the EAC/AA Request File (file type PERQ_001)
Output Filename	14 character TEXT field, the name of the EAC/AA Output File (file type PEEX_001)

RECORD MEX	
Field Name	**Field description**
Record Code	='MEX'
Demand Control Event Id	30 digit Character field. The DCE id for which the exception is being recorded.
Metering System Id	13 digit INTEGER field. The Metering System for which the exception is being recorded.
Reason Code	3 character TEXT field. A code representing the reason for the exception
Effective From Settlement Date{MAC}	DATE field. The start date and time of the DCE id for which the exception is being recorded.
Effective To Settlement Date{MAC}	DATE field. The end date and time of the DCE id for which the exception is being recorded.
Reason Details	256 character TEXT field. Details of the reason.

RECORD CNT	
Field Name	**Field description**
Record Code	='CNT'
Exception Count	8 digit INTEGER field. The number of Metering Systems for which exceptions were reported.

3.1.17 External Interface Demand Control Event Exceptions Report

Any exceptions reported while loading the Demand Control Event file are passed onto the Non-HH Data Collector via the file interface.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'L0045001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

This file has no ZPD record.

The record structure of the Data Section is shown below. There is one MEX record for each exception reported:

RUN

MEX

CNT

If there are no exceptions, the file is produced with no MEX records.

RUN Record

RECORD RUN	
Field Name	**Field description**
Record Code	='RUN'
User Id	30 character TEXT field, the username of the user who invoked the calculation, read from the edb_jobs database table.

Input Filename	14 character TEXT field, the name of the EAC/AA Request File (file type P0238001)
Output Filename	14 character TEXT field, the name of the EAC/AA Output File (file type L0045001)

RECORD MEX	
Field Name	**Field description**
Record Code	=‘MEX’
Demand Control Event Id	30 digit Character field. The DCE id for which the exception is being recorded.
Metering System Id	13 digit INTEGER field. The Metering System for which the exception is being recorded.
Reason Code	3 character TEXT field. A code representing the reason for the exception
Start Date and Time	DATE field. The start date and time of the DCE id for which the exception is being recorded.
End Date and Time	DATE field. The end date and time of the DCE id for which the exception is being recorded.
Reason Details	256 character TEXT field. Details of the reason.

RECORD CNT	
Field Name	**Field description**
Record Code	=’CNT’
Exception Count	8 digit INTEGER field. The number of Metering Systems for which exceptions were reported.

3.1.18 External Interface Disconnected MSIDs and Estimated HH Demand Disconnection Volumes Exceptions Report

Any exceptions reported while loading the Disconnected MSIDs and Estimated HH Demand Disconnection Volumes file are passed onto the Non-HH Data Collector via the file interface.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'L0046001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

This file has no ZPD record.

The record structure of the Data Section is shown below. There is one MEX record for each exception reported:

RUN

MEX

CNT

If there are no exceptions, the file is produced with no MEX records.

RUN Record

RECORD RUN	
Field Name	**Field description**
Record Code	='RUN'
User Id	30 character TEXT field, the username of the user who invoked the calculation, read from the edb_jobs database table.
Input Filename	14 character TEXT field, the name of the EAC/AA Request File (file type D0375001)
Output Filename	14 character TEXT field, the name of the EAC/AA Output File (file type L0046001)

RECORD MEX	
Field Name	**Field description**
Record Code	='MEX'
Demand Control Event Id	30 digit Character field. The DCE id for which the exception is being recorded.
Metering System Id	13 digit INTEGER field. The Metering System for which the exception is being recorded.
Reason Code	3 character TEXT field. A code representing the reason for the exception
Start Date and Time	DATE field. The start date and time of the DCE id for which the exception is being recorded.

End Date and Time	DATE field. The end date and time of the DCE id for which the exception is being recorded.
Reason Details	256 character TEXT field. Details of the reason.

RECORD CNT	
Field Name	**Field description**
Record Code	='CNT'
Exception Count	8 digit INTEGER field. The number of Metering Systems for which exceptions were reported.

3.2 Internal Interfaces

3.2.1 General

Most of the communications within the EAC/AA system is limited to the communications between the subsystems and the database. The individual

subsystem description describes the communications between the subsystem and the database in detail.

The internal interface between the subsystems within the EAC/AA system is limited to communication between the Scheduler (ESC) subsystem and Process Data Files (EPD), Load Standard Settlement Configuration (ESL) and Archive Data (EAR) subsystems. In addition, the File Receipt Manager (EFR) interface with the Scheduler (ESC) provides a virtual interface between EFR and ESL, and also, in Automatic Mode, between EFR and EPD.

The communications between the Scheduler (ESC) and other subsystems, achieved via a database table, polled by the Scheduler process regularly, and populated by the individual subsystems for initiating background processes.

The following section describes the details of the data passed to the Scheduler subsystem table, in order to facilitate scheduling of the background batch

3.2.2 Scheduler Trigger

All the batch processes within the EAC/AA system are initiated by the Scheduler (ESC) subsystem. The details of the procedures within the specific subsystems are passed to the Scheduler (ESC) via a database table - edb_jobs. The details necessary for the execution of the job are stored in the database by calling a procedure to load a row into edb_jobs table. The details in the edb_jobs table are then monitored and procedures are executed by the Scheduler (ESC) by monitoring the entries in the edb_jobs table.

Once a valid job is detected, the details of the executable for the procedure are extracted from the edb_procedure_codes table using the edb_jobs.procedure_name.

3.2.3 Internal Interface Deemed Meter Reading Audit Report File

This section specifies the format of the report produced by the EMC_AUD process. This report is then converted to a human-readable format by the ERP subsystem before it is viewed by the users.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = ‘L0045001’

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = ‘D’

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = ‘D’

This file has no ZPD record.

The record structure of the Data Section is shown below:

USR

SEL

MET

PRO

REG

ERR

There is one MET record for each calculation being reported on.

USR Record – Identifies the user who requested the report

RECORD USR	
Field Name	**Field description**
Record Code	='USR'
Username	30 character TEXT field

SEL Record – Selection Criteria (as entered by the user who requested the report)

RECORD SEL	
Field Name	**Field description**
Record Code	='SEL'
Criteria Title	40 character TEXT field e.g. "GSP Group Id"
Criteria Value	80 character TEXT field. The value entered by the user for that criteria.

MET Record – Metering System Details

RECORD MET	
Field Name	**Field description**
Record Code	='MET'
Metering System Id	13 digit INTEGER field. The Metering System for which the calculation was done.
Transaction	8 character INTEGER field. The transaction number allocated to the calculation.
GSP Group Id	2 character TEXT field. The GSP Group ID of the Metering System.
SSC Id	4 character TEXT field. The SSC Id of the

	Metering System.
First Meter Reading Date	DATE field. The date of the first Meter Reading made for the Metering System.
Second Meter Reading Date	DATE field. The date of the second Meter Reading made for the Metering System.
Deemed Meter Reading Date	DATE field. The date for which the Deemed Meter Readings apply.
Calculation Date Time	DATE/TIME field. The time when the calculation was done.
Username	30 character text field. The user who requested the calculation.
Status	1 character TEXT field. The exit status of the calculation.
Status Message	Optional 512 character TEXT field. Holds the text from any Oracle error which occurred in processing the calculation.

PRO Record – Profile Class Details

RECORD PRO	
Field Name	**Field description**
Record Code	=‘PRO’
Profile Class Id	2 character INTEGER field. A Profile Class to which the Metering System has been assigned
Effective From Settlement Date	DATE field. The Settlement Date on which this Profile Class became effective for this Metering System.

REG Record – Register Details

RECORD REG	
Field Name	**Field description**
Record Code	=’REG’
TPR Id	5 character TEXT field. The TPR Id of one of the registers of the Metering System
Register Id	Optional 2 character TEXT field. An identifier of the register.
Register Digits	2 character INTEGER field. The number of digits of the register.
First Meter Reading	12 digit INTEGER field. The reading taken from this register on the first meter reading date.
Second Meter Reading	12 digit INTEGER field. The reading taken from this register on the second meter reading date.

Rollover	1 character TEXT field. 'F' if the Second Meter Reading is less than the First Meter Reading and this is not due to a meter rollover; otherwise 'T'.
AA	FLOATING POINT with a length of 12 digits and 1 decimal place.. The Annualised Advance calculated for the register.
DMA	12 digit INTEGER field. The Deemed Meter Advance calculated for the register.
Deemed Meter Reading	12 digit INTEGER field. The Deemed Meter Advance Reading calculated for the register on the Deemed Meter Reading Date

ERR Record – Error/Warning Details

RECORD ERR	
Field Name	**Field description**
Record Code	='ERR'
Error Severity	1 character TEXT field. The severity code of the error or warning: 'E' or 'W'.
Error or Warning	200 character TEXT field. Details of an error or warning which occurred for the register.

3.2.4 Internal Interface Daily Profile Coefficient Report File

This section specifies the format of the report produced by the ECP_REP process. This report is then converted to a human-readable format by the ERP subsystem before it is viewed by the users.

The Header section of the file has the following specific characteristics:

ZHD Record

File Type = 'L0050001'

Market Participant Id (Source Address) - Populated from edb_system_configuration

Market Participant Role Code (Source Address) = 'D'

Market Participant Id (Target Address) - Populated from edb_system_configuration

Market Participant Role Code (Target Address) = 'D'

This file has no ZPD record.

The record structure of the Data Section is shown below:

USR

SEL

DPC

USR Record – Identifies the user who requested the report

RECORD USR	
Field Name	**Field description**
Record Code	=‘USR’
Username	30 character TEXT field

SEL Record – Selection Criteria (as entered by the user who requested the report)

RECORD SEL	
Field Name	**Field description**
Record Code	=‘SEL’
Criteria Title	40 character TEXT field e.g. “GSP Group Id”
Criteria Value	80 character TEXT field. The value entered by the user for that criteria.

DPC Record – Daily Profile Coefficient Details

RECORD DPC	
Field Name	**Field description**
Record Code	=‘DPC’
Settlement Date	DATE field.
GSP Group Id	2 character TEXT field. The GSP Group ID of the Metering System.
Profile Class Id	2 character INTEGER field. A Profile Class to which the Metering System has been assigned
SSC Id	4 character TEXT field. The SSC Id of the Metering System.
TPR Id	5 character TEXT field. The TPR Id of one of the registers of the Metering System
Daily Profile Coefficient	FLOATING POINT with a length of 14 digits and 13 decimal places

4 Database Specification

4.1 General

This chapter describes the physical EAC/AA database. It includes a number of details about the online database. These are the tables, their fields and constraints, primary, foreign keys and an approximate maximum number of expected rows. It also provides a rough estimate of the size of the database based on the maximum expected rows. It describes the details of the data to be audited in the EAC/AA system and provides information about the archive data and an estimate of its volume.

The details of the physical implementation of the database will not be described in this section.

4.2 Files

The file store within the system consists of the files received from external sources and files produced as a result of the calculations carried out by the EAC/AA system. The details of these file are given in the EAC/AA External Interfaces section. The location where the files are stored within the EAC/AA system will be specified as rows in the edb_ref_values table. The domain_code for these locations is 'LOCS'. The edb_ref_values table definition contains a list of the unique ids related to each of the physical stores and their associated directory names.

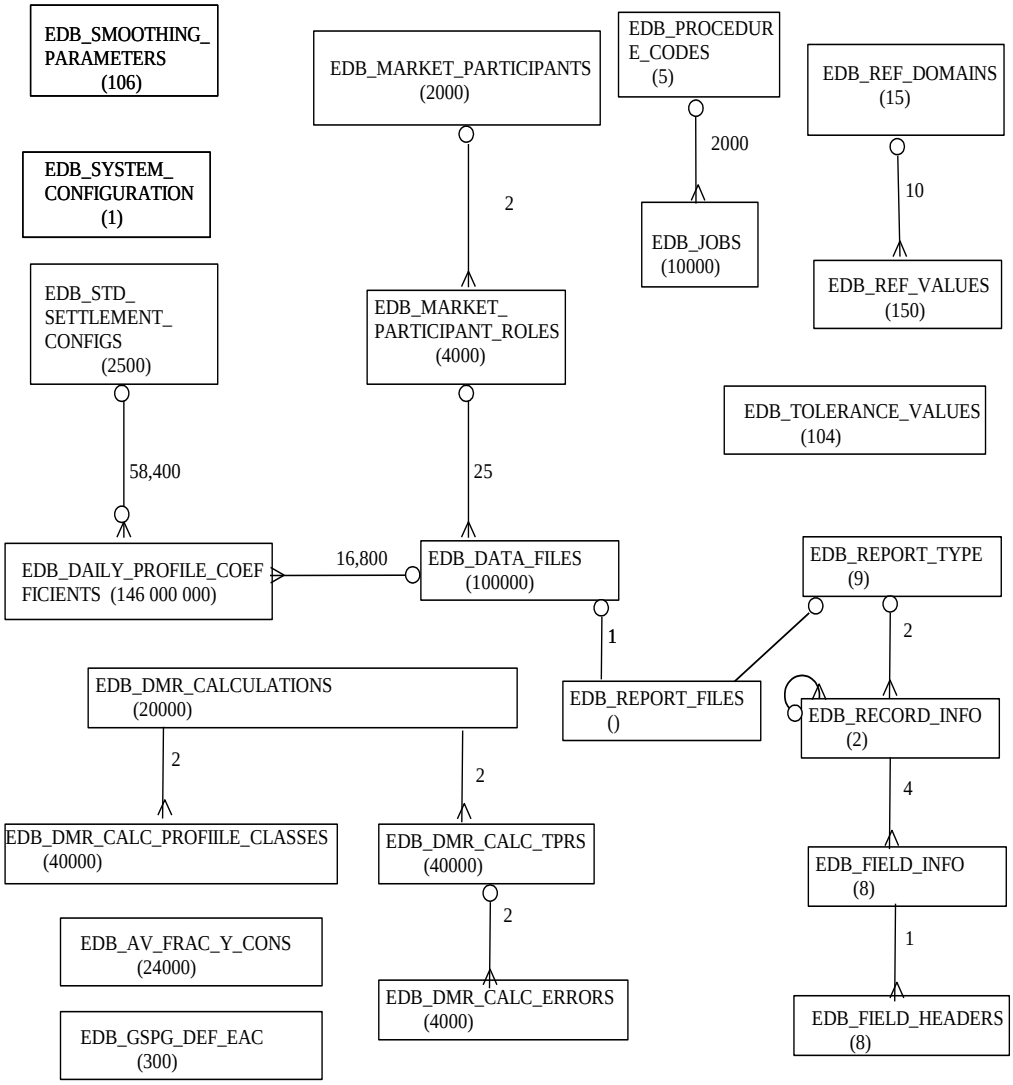
Source	Destination	File Type	Volume	Frequency
EAC/AA System	Non-HH Data Collector	EAC/AA File	<3 MB	Daily
EAC/AA System	Non-HH Data Collector	Deemed Meter Advance Files	Not Available	Not Available
Non-HH Data Collector	EAC/AA System	EAC/AA Request File	Not Available	Not Available
Non-HH Data Collector	EAC/AA System	Deemed Meter Advance Request Files	Not Available	Not Available
Pool	EAC/AA System	Standard Settlement Configuration File	< 10 KB	Ad-hoc Less than Daily
ISRA	EAC/AA System	Daily Profile Coefficient File	< 3 MB	Daily

4.3 Online Database

4.3.1 General

This section provides a pictorial representation of the physical EAC/AA database followed by the details of the individual tables. The names in the boxes are the table names and the figures in the brackets are the expected maximum number of rows.

The primary and foreign key constraints have been specified in the table definitions by naming them <XXXX>_pk for primary key constraints and <XXXX>_fk for foreign key constraints.



4.3.2 Table edb_ref_domains

The edb_ref_domains table will specify the high level definition of a domain that is used to identify a particular set of values, held in edb_ref_values.

Table Description

domain_code varchar2(4) not null

domain_name	varchar2(30)	not null
Primary key	redo_pk	domain_code

Comments :

domain_code - The unique identifier for the domain.

domain_name - The name of the domain.

Estimated Number Of Rows - 7

EAC Domain Data - The following domain values have been defined:

domain_code	**domain_name**
MARO	Market Role
FCCO	File Content Code
SECO	Settlement Code
RTCO	Run Type Code
POLL	Polling Frequency
LOCS	File Store Locations
DFST	Data File Status
SYS	System Data
ARCH	Archiving Parameters

4.3.3 Table edb_ref_values

The edb_ref_values table will contain reference data that is defined for a particular domain. The value_from and value_to fields have been defined as varchar2 type, where the value held in these fields is numeric

Table Description

domain_code	varchar2(4)	not null
value_from	varchar2(30)	not null
description	varchar2(255)	
value_to	varchar2(30)	

Primary Key	reva_pk	domain_code
		value_from
Foreign Key	reva_fk1	domain_code
		references edb_ref_domains table

joining to :

domain_code.

Comments :

domain_code - A unique code identifying the domain.

value_from - A discrete or lowest value for a range e.g. 'A' for a Data Aggregator.

description - The description associated with the value, e.g. 'Data Aggregator'.

value_to - A discrete or highest value for a range.

Estimate Number of Rows - 150.

MARO (Market Roles) Domain

value_from	Description
A	HH Data Aggregator
B	Non-HH Data Aggregator
C	HH Data Collector
D	Non-HH Data Collector
F	Pool Funds Administrator
G	ISR Agent
K	Profile Administrator
M	Meter Operator
P	PRS Agent
R	Distributor
S	Settlement Systems Administrator
X	Supplier

File Content Code (FCCO) Domain

value_from	Description
D0039001	Daily Profile Coefficients
D0227001	Standard Settlement Configuration
PERQ_001	EAC/AA Request File
PDRQ_001	Deemed Meter Advance Request File
PEEX_001	EAC/AA File
PDEX_001	Deemed Meter Advance File
P0238001	MSIDs Demand Control Event File

D0018001	Daily Profile Data File
D0375001	Disconnected MSIDs and Estimated HH Demand Disconnection Volumes
L0041001	EAC/AA Exceptions File
L0042001	EAC/AA Tolerance Value Exceptions File
L0003001	Human-Readable Report File
L0045001	Ad Hoc DMR Calculation Audit Report File
L0046001	Demand Control Event Exception File
L0047001	Disconnected MSIDs and Estimated HH Demand Disconnection Volumes Exceptions FileS

Settlement Code (SECO) Domain

value_from	Description
SF	Initial Settlement
R1	First Reconciliation
R2	Second Reconciliation
R3	Third Reconciliation
RF	Final Reconciliation
DR	Dispute
DF	Final Dispute

Run Type Code (RTCO) Domain

value_from	Description
A	HH Data Aggregation Run Number
B	Daily Profile Production Run Number
C	SSR Run Number
D	NHH Data Aggregation Run Number
E	SSA Settlement Run Number

Location (LOCS) Domain

value_from	value_to	Description
1	E_files_in	File Receipt Store
2	E_files_out	File Dispatch Store
3	E_exception	Exceptions Store
4	E_report	Report Store
5	E_audit/audit.log	Audit Store & File Name (separated by '/')
6	E_store	File Store
7	E_archive	Archive Store
8	E_reject	Reject Store
9	E_log	Scheduler & File Receipt Manager Log area
10	E_transit	Area to store the file being processed by File Receipt Manager temporarily.
11	E_mr_reports	Machine-Readable Reports Store

Polling Frequency (POLL) Domain

value_from	value_to	Description
1	10	ESC Polling frequency (seconds)
2	30	EFR Polling Frequency (seconds)
3	5000	DMR Calculation Form - Timer Repeat Interval (Milli Secs)
4	10	DMR Calculation Form - Timer Repeat Count (No)

Data File Status (DFST) Domain

value_from	Description
C	Completed
R	Ready to run
F	Failed
M	Multiple Load
A	Archived

System (SYS) Domain

value_from	Description
VERS	< EAC/AA Version Number, varies in each build >
BSD	BETTA Start Date

Archiving Data (ARCH) Domain

value_from	value_to	Description
1	90	Number of days to retain edb_data_files records of control reports
2	90	Number of days to retain edb_data_files records of exception reports

4.3.4 Table edb_market_participants

The edb_market_participants table is created from the entity, Market Participants. The table allows any organisation that participates in the Pool Market to be defined. Within the EAC/AA system the details contained within this table will be entered using a SQL script at system build time, hence the data in this table is static.

Table Description

participant_id	varchar2(4)	not null
name	varchar2(30)	not null
Primary Key	mapa_pk	participant_id

Comments :

participant_id - The unique identifier for a Market Participant. It is assumed that it is a user defined id and not system generated.

Estimated Number of Rows - 2000.

4.3.5 Table edb_market_participant_roles

The edb_market_participant_roles table is created from the entity, Market Participant Role. The table allows the association of a Market Participant with a Market Role. Within the EAC/AA system the details contained within this table will be entered using a SQL script at system build time, hence the data in this table is static.

Table Description

participant_id	varchar2(4)	not null
market_role	varchar2(1)	not null

Primary Key	mapr_pk	participant_id market_role
Foreign Key	mapr_fk1	participant_id references edb_market_participants table joining to : participant_id.

Comments :

market_role - The edb_ref_values table will hold a valid set of Market Roles for the 'MARO' (Market Role) domain.

Estimated Number of Rows - 4000.

4.3.6 Table edb_data_files

The data_files table is created from the source entities, Data File and Daily Profile Coefficient Set. The logical model defines a one to one relationship between the Data File and Daily Profile Coefficient Set. A straight cut from logical to physical model would mean that the two tables that are produced would have to be kept in 'sync' in order to implement the one to one relationship. The two logical tables have been combined in edb_data_files.

Table Description

participant_id	varchar2(4)	not null
market_role	varchar2(1)	not null
file_seq_num	number(6)	not null
file_name	varchar2(30)	not null
location_id	varchar2(2)	not null
file_action	varchar2(1)	not null
file_action_date	date	
file_creation_date	date	not null
file_processed_date	date	
file_status	varchar2(1)	
file_content_code	varchar2(8)	not null
run_num	number(7)	
run_type_code	varchar2(2)	
settlement_date	date	
settlement_code	varchar2(2)	
gsp_group_id	varchar2(2)	

num_of_aas_calc number(7)

Primary Key	dafi_pk	file_seq_num
Foreign Key	dafi_fk1	participant_id market_role references edb_market_participant_roles table joining to : participant_id. market_role.

Comments :

file_seq_num - Sequence number allocated to each Data File using the edb_file_seq (an Oracle sequence generator)

file_name - The name of the Data File. For files created by EAC/AA, the name includes a number allocated using the edb_filename_seq (an Oracle sequence generator)

location_id - The location of the file as defined in the edb_ref_values with domain_name of 'LOCS' table.

file_action - Whether the Data File is one that has been 'R'eceived or 'S'ent.

file_action_date - The date that the file was Received or Sent.

file_creation_date - The date that the Data File was created.

file_processed_date - The date that the Data File was processed.

file_status - The status of the Data File, a valid set of File Status values will be held in the edb_ref_values table under the 'DFST' (Data File Status) domain.

file_content_code - Identifies the subject of a Data File. A set of valid File Content Codes will be held in edb_ref_values table under the 'FCCO' (File Content) domain.

run_num - The version of the Data File.

run_type_code - Provides information relating to the Source and Type of Data File. A set of valid Run Type Codes will be held in edb_ref_values table under the 'RTCO' (Run Type Code) domain.

settlement_date - The Settlement Date for the Data File.

settlement_code - Identifies the type of Settlement. A set of valid Settlement Codes will be held in edb_ref_values table under the 'SECO' (Settlement Code) domain.

gsp_group_id - Identifies the GSP group.

num_of_aas_calc - Number of Annualised Advances (AAs) calculated using Daily Profile Coefficients from a particular Data File. This number is added to if the coefficients are used in more than one run of the calculation process.

Estimated Number Of Rows - 100000

4.3.7 Table edb_daily_profile_coefficients

The edb_daily_profile_coefficients table is created from the Daily Profile Coefficients entity. The table will hold a summary of all Period Coefficients for a Settlement Day, within a given GSP group. Some of the implementation possibilities have been discussed in the Database Overview section.

Table Description

settlement_date	date	not null
gsp_group_id	varchar2(2)	not null
profile_class_id	number(2)	not null
std_sett_config_id	varchar2(4)	not null
time_pattern_regime_id	varchar2(5)	not null
run_num	number(7)	not null
file_seq_num	number(6)	not null
coefficient	number(14,13)	not null

Primary Key	dpco_pk	settlement_date
		gsp_group_id
		profile_class_id
		std_sett_config_id
		time_pattern_regime_id
Foreign Key	dpco_fk1	file_seq_num
		references the edb_data_files table
		joining to :
		file_seq_num.
	dpco_fk2	Optional foreign key
		std_sett_config_id
		references edb_std_settlement_configs table
		joining to :

std_sett_config_id.

Comments :

settlement_date - The date of the settlement run.

file_seq_num - The unique identifier of the Daily Profile Coefficient file.

gsp_group_id - The unique identifier for the GSP Group.

profile_class_id - The unique identifier for the profile class.

std_sett_config_id - The unique identifier for a Standard Settlement Configuration.

time_pattern_regime_id - The identifier for the time pattern regime being used to calculate money owed.

run_num - The unique identifier for a particular Profile Production Run within a GSP group.

coefficient - This holds the daily totalled profile coefficient.

Estimated Number Of Rows - 146,000,000

4.3.8 Table edb_jobs

The table edb_jobs, stores the details of background procedures to be executed by the EAC/AA system. This table has been introduced to cater for the functionality of the EAC/AA subsystems and has no source entity in the Logical Data Model. Where the parameters required for the execution of the procedure are not varchar2 types, the recipient procedure will carryout the conversion to the expected type. However, the details are always passed in to the procedure as varchar2 data types.

Table Description

job_number	number(12)	not null
job_status	varchar2(1)	not null
procedure_name	varchar2(25)	not null
username	varchar2(30)	not null
parameter1	varchar2(150)	
parameter2	varchar2(150)	
parameter3	varchar2(150)	
parameter4	varchar2(150)	
parameter5	varchar2(150)	
parameter6	varchar2(150)	
parameter7	varchar2(150)	
exit_code	number(3)	

Primary Key	jobn_pk	job_number
Foreign Key	jobn_fk1	procedure_name references edb_procedure_codes table joining to : procedure_name.

Comments :

job_number - Sequence number allocated to each Job using the edb_file_seq (an Oracle sequence generator)

job_status - Indicates the status of the background job, the valid values for this are as follows:

- R - Job is Running
- W - Job is awaiting execution
- F - Job failed during execution
- C - Job completed successfully
- X - Job completed with exceptions

procedure_name - name of procedure executed or awaiting execution.

username - name of the user who submitted the job.

parameter1 - The first parameter to be passed to procedure required for its execution.

parameter2 - The second parameter to be passed to procedure required for its execution.

parameter3 - The third parameter to be passed to procedure required for its execution.

parameter4 - The fourth parameter to be passed to procedure required for its execution.

parameter5 - The fifth parameter to be passed to procedure required for its execution.

parameter6 - The sixth parameter to be passed to procedure required for its execution.

parameter7 - The seventh parameter to be passed to procedure required for its execution.

exit_code - Exit code returned by job.

Estimated Number Of Rows - 10000

4.3.9 Table edb_procedure_codes

The table edb_procedure_codes, stores the details of procedure names to be executed by the EAC/AA system. This table has been introduced to cater for the functionality of the EAC/AA subsystems and has no source entity in the Logical Data Model.

Table Description

procedure_name	varchar2(25)	not null
procedure_desc	varchar2(50)	not null
queue_limit	number(2)	not null
exe_location	varchar2(50)	not null
procedure_type	varchar2(1)	not null

Primary Key proc_pk procedure_name

Comments :

procedure_name - A unique name identifying the procedure name within the EAC/AA system.

Procedure_desc - Text to identify the functionality associated with the procedure_name.

queue_limit - Identifies the number of jobs of this type that can run at any one time.

exe_location - Location at which the executable for the procedure is located.

procedure_type - The physical implementation of the procedure. The valid values for this field are:

- ‘P’ - SQL - PL/SQL
- ‘C’ - Pro*C
- ‘S’ - Shell script

Estimated Number Of Rows - 6

4.3.10 Table edb_std_settlement_configs

The edb_std_settlement_configs is created from the entity, Standard Settlement Configurations. The table allows users to define a set of Standard Configurations for use when loading Daily Profile Coefficients.

Table Description

std_sett_config_id	varchar2(4)	not null
configuration_desc	varchar2(50)	not null
load_dpc	varchar2(1)	not null

Primary Key stco_pk std_sett_config_id

Comments :

std_sett_config_id - A unique, user defined, identifier used to identify a Standard Configuration.

configuration_desc - A description of the configuration used.

load_dpc - A flag to indicate whether Daily Profile Coefficients associated with the Standard Configuration are to be loaded into the system.

Estimated Number Of Rows - 2500

4.3.11 Table edb_smoothing_parameters

The table edb_smoothing_parameters table is created from the entity Smoothing Parameter. This table holds a set of smoothing parameters which are effective from a given Settlement Date. Database triggers for Update and Delete will be implemented for this table to audit the changes to this table.

Table Description

settlement_from_date	date	not null
smoothing_param	number(6,3)	not null

Primary Key stdt_pk settlement_from_date

Comments :

settlement_from_date - The Settlement Date from which the Smoothing Parameter is effective.

Smoothing_param - A standard positive factor, supplied by the ISR Agent, which determines how much weight is given to an Annualised Advance and how much is given to the previous EAC, when calculating a new value for an EAC.

Estimated Number Of Rows - 106

4.3.12 Table edb_system_configuration

The table edb_system_configuration is created from the entity System Configuration. The table will only ever have one record in it and defines and contains data pertaining to a specific EAC/AA Installation. Within the EAC/AA system the details contained within this table will be entered using a SQL script at system build time, hence the data in this table is static.

Table Description

participant_id	varchar2(4)	not null
market_role	varchar2(1)	not null
system_mode	varchar2(1)	not null
eacaa_root_dir	varchar2(2000)	null

Comments :

No primary key defined since the table will only ever hold one row.

participant_id - the Market Participant Id of the organisation running this installation of EAC/AA.

market_role - the Market Participant Role Code of the organisation running this installation of EAC/AA.

system_mode - the valid values for this field are:

- 'M' - Manual Mode
- 'A' - Automatic Mode

eacaa_root_dir - value of the $EACAA environment variable, held in the database so that it can be read by PL/SQL code. The database field is updated from the environment variable each time that the scheduler is started.

Estimated Number Of Rows - 1

4.3.13 Table edb_report_files

Holds one record for each report file that has been generated, containing additional information to that held in the edb_data_files record for the file.

The table fields are as follows:

file_seq_num	number(6)	not null
report_type	varchar2(8)	not null
gen_file_seq_num	number(6)	

Primary Key	refi_pk	file_seq_num
Foreign Key	refi_fk1	file_seq_num references edb_data_files table joining to : file_seq_num
Foreign Key	refi_fk2	gen_file_seq_num references edb_data_files table joining to : file_seq_num

Foreign Key	refi_fk3	report_type references edb_report_type table joining to : file_type

Comments:

file_seq_num - the file sequence number of the report file produced by the batch process which performed the calculation / load.

report_type - the report type.

gen_file_seq_num - the file sequence number of a secondary file subsequently generated from the original one. This field will only have a value if report_type is 'EACEXC', 'EACAXC' or 'DMRAUD' and a human-readable report has been generated from the machine-readable report.

4.3.14 Table edb_report_type

Holds a name for each report that can be accessed from the client. This is used when displaying the list of available reports within subsystem ERP.

Data in this table will be loaded as part of implementation and is not expected to change during normal operation of the system.

The table will contain one record for each control report and exception report produced by a batch process.

The table fields are as follows:

file_type	varchar2(8)	not null
report_name	varchar2(30)	not null
page_width	number	
page_length	number	

Primary Key	rety_pk	file_type

Comments:

file_type: one of 'EACCTL', 'EACEXC', EACAXC, 'DMACTL', 'DMAEXC', 'DPCCTL', 'DPCEXC', 'SSCEXC', 'DMRAUD', 'ECPREP'

report_name: the report name as displayed in the list of available reports, e.g. 'EAC/AA Calculation Exceptions'

page_width, page_length: only have a value for the record for report types which are initially produced as a machine-readable report from which a human-readable report is subsequently generated by the ERP Report Formatter.

Table population:

File_type	report_name	page_width	page_length
DMACTL	DMA Calculation Control	<NULL>	<NULL>
DMAEXC	DMA Calculation Exceptions	<NULL>	<NULL>
DPCCTL	DPC Load Control	<NULL>	<NULL>
DPCEXC	DPC Load Exceptions	<NULL>	<NULL>
EACCTL	EAC/AA Calculation Control	<NULL>	<NULL>
EACEXC	EAC/AA Calculation Exceptions	132	40
EACAXC	EAC/AA AA Tolerance Exceptions	132	40
SSCEXC	SSC Load Exceptions	<NULL>	<NULL>
DMRAUD	Ad Hoc DMR Calculation Audit	132	40
ECPREP	Report on DPC	132	40

4.3.15 Table edb_record_info

Holds information of the relationship between records in a report, ie: which records are child detail of other records.

Data in this table will be loaded as part of implementation and is not expected to change during normal operation of the system.

The table will contain one record for each report record type which is initially produced as a machine-readable report from which a human-readable report is subsequently generated by the ERP Report Formatter.

The table fields are as follows:

file_type	varchar2(8)	not null
record_type	varchar2(3)	not null
parent_record	varchar2(3)	

Primary Key	rein_pk	file_type
		record_type
Foreign Key	rein_fk1	file_type
		references edb_report_type table
		joining to :
		file_type
Foreign Key	rein_fk2	file_type
		parent_record
		references edb_record_info table
		joining to :
		file_type

record_type

Comments: The parent_record field will be null for the first level of records in a report.

4.3.16 Table edb_field_info

Holds details of the fields making up records in reports and indicates how these will map from the internal format to a human-readable format.

Data in this table will be loaded as part of implementation and is not expected to change during normal operation of the system.

The table will contain one record for each field in each record type.

The table fields are as follows:

file_type	varchar2(8)	not null
record_type	varchar2(3)	not null
field_number	number	not null
row_head_width	number	
field_type	varchar2(1)	not null
print_width	number	not null
new_line_after	number	

Primary Key	fiin_pk	file_type
		record_type
		field_number
Foreign Key	fiin_fk1	file_type
		record_type
		references edb_record_info table
		joining to :
		file_type
		record_type

Comments:

field_type can take the following values:

‘I’ - Integer

‘F’ - Decimal (Float)

‘S’ - Text (String)

‘Y’ - Date (daY)

'T' - Time

'D' - Date/Time

'B' - Boolean

If row_head_width is null any header in edb_field_headers is considered to be a column heading. Otherwise any value in edb_field_headers is taken as a row heading and is padded to the specified "row head width".

If new_line_after is null (or zero), no new lines are included after the field. Otherwise, the absolute value of the number indicates the number of new lines to be included after the field. A positive value indicates the new lines are always included. A negative value indicates that a new lines are only included if the line is not blank. If the value is negative, and the line is blank, the whole line is suppressed. This facility is used when records have large arrays of data which may have many null values at the end.

4.3.17 Table edb_field_headers

Holds details of the field headers to be used in the formatted reports.

Data in this table will be loaded as part of implementation and is not expected to change during normal operation of the system.

The table will contain one record for each line header for each field detailed in edb_field_info. Currently the expected maximum is four records per field.

The table fields are as follows:

file_type	varchar2(8)	not null	
record_type	varchar2(3)	not null	
field_number	number	not null	
header_sequence	number	not null	prime key
header_text	char(80)	not null	

Primary Key	fihe_pk	file_type
		record_type
		field_number
		header_sequence
Foreign Key	fihe_fk1	file_type
		record_type
		field_number
		references edb_field_info table
		joining to :
		file_type

	record_type
	field_number

Comments: For a field with row headers, only one entry should exist. For a field with column headers, multiple entries may be present corresponding to possible multiple rows of column headings.

4.3.18 Table edb_tolerance_values

Holds details of the Annualised Advance Tolerance Values.

Data in this table will be loaded as part of implementation and is not expected to change during normal operation of the system.

The table will contain one record for each combination of GSP Group and Profile Class.

The table fields are as follows:

gsp_group	varchar2(2)	not null	prime key
pfl_class	number(2)	not null	prime key
high_aa	number(12)	not null	
low_aa	number(12)	not null	

Primary Key	aa_ref_pk	gsp_group	
		pfl_class	

Comments: The maximum number of rows in this table will be 104 (13 GSP Groups * 8 Profile Classes).

4.3.19 Table edb_dmr_calculations

Holds one record for each ad hoc deemed meter reading calculation which the user invoked by clicking on the calculate button on the form.

The table fields are as follows:

transaction	number(8)	not null
metering_system_id	varchar2(13)	not null
std_sett_config_id	varchar2(4)	not null
gsp_group_id	varchar2(2)	not null
mr_date_1	date	not null
mr_date_2	date	not null
dmr_date	date	not null
calculation_date_time	date	
username	varchar2(30)	not null
status	varchar2(1)	not null

status_message	varchar2(512)	

Primary Key	dmrc_pk	transaction

Comments:

transaction - Sequence number allocated to each calculation using the edb_transaction_seq (an Oracle sequence generator)

metering_system_id – Each character must be numeric. The 13th character is a check digit calculated from the first 12 digits using the industry standard algorithm.

status - can take one of the following values:

'R' – requested

'I' – in progress

'S' - completed successfully

'W' completed with warnings

'E' – business error(s) prevented successful completion

'F' – an Oracle error occurred

status_message – null unless the status is 'F' in which case it contains the Oracle message text

4.3.20 Table edb_dmr_calc_profile_classes

Holds one record for each profile class entered by the user as part of the input to an ad hoc deemed meter reading calculation.

The table fields are as follows:

transaction	number(8)	not null
profile_class_id	number(2)	not null
settlement_from_date	date	not null

Primary Key	dmrp_pk	transaction
		profile_class_id
		settlement_from_date
Foreign Key	dmrp_fk1	transaction
		references
		edb_dmr_calculations table
		joining to:
		transaction

4.3.21 Table edb_dmr_calc_tprs

Holds one record for each time pattern regime entered by the user as part of the input to an ad hoc deemed meter reading calculation.

The table fields are as follows:

transaction	number(8)	not null
entry_location	number(2)	not null
time_pattern_regime_id	varchar2(5)	not null
register_id	varchar2(2)	
register_digits	number(2)	not null
meter_reading_1	number(12)	not null
meter_reading_2	number(12)	not null
rollover	varchar2(1)	not null
aa	number(12,1)	
dma	number(12,1)	
dmr	number(12)	
short_error	varchar2(25)	

Primary Key	dmrt_pk	transaction
		entry_location
Foreign Key	dmrt_fk1	transaction
		references
		edb_dmr_calculations table
		joining to:
		transaction

Comments:

entry_location – indicates the order that the user entered the TPR records on the form; used to ensure that the TPRs are displayed in the same order in the Audit Report

rollover - a Boolean value where ‘T’ indicates that any negative advance is due to a meter rollover and ‘F’ indicates that the negative meter advance is a genuine negative meter advance.

short_error - is the error message displayed on the calculation screen once the calculation is complete. The following possible errors or warnings have been identified:

“Error:DPCs not present”

“Warning:AA outside tol”

"Error:DPC Calculation"

"Error:DMR Calculation"

4.3.22 Table edb_dmr_calc_errors

Holds one record for error or warning that was recorded as an ad hoc deemed meter reading calculation ran.

The table fields are as follows:

transaction	number(8)	not null
entry_location	number(2)	not null
error_instance	number(8)	not null
error_severity	char	not null
long_error	varchar2(200)	not null

Primary Key	dmre_pk	transaction
		entry_location
		error_instance
Foreign Key	dmre_fk1	transaction
		entry_location
		references
		edb_dmr_calc_tprs table
		joining to:
		transaction
		entry_location

Comments:

error_instance - Sequence number allocated to each error using the edb_dmr_error_seq (an Oracle sequence generator)

error_status – 'E' or 'W'

long_error – is the error message displayed on the screen after the Error/Warning Details button has been pressed. The following are examples of the errors or warnings which have been identified:

Tolerance Exception: AA 2765.2234 MA 1522.987 From 01-06-2004 To 07-06-2005 For PC 1 High AA 50 Low AA -5

DPC data missing between 01-06-2004 and 07-06-2005

Calculating DPC from 01-06-2004 to 07-06-2005 ORA-06502: PL/SQL: numeric or value error: number precision too large

Calculating DMR: ORA-06502: PL/SQL: numeric or value error: number precision too large

4.3.23 Table edb_gspg_pc_def_eac

The table edb_gspg_pc_def_eac is created from the entity GSP Group Profile Class Default EAC. This table holds a set of GSP Group Profile Class Default EAC records which are effective from a given Settlement Date.

Table Description

gsp_group_id	varchar2(2)	not null,
profile_class_id	number(2)	not null,
eff_from_sett_date	date	not null,
eff_to_sett_date	date	not null,
	default	'31-DEC-4712'
gspg_pc_default_eac	number(12,1)	not null

Primary Key	gpde_pk	gsp_group_id,
		profile_class_id

Comments :

eff_from_sett_date - The first Settlement Date for which the Researched Default EAC is effective.

gsp_group_id - The unique id of a GSP Group.

profile_class_id - The nationally unique identifier of a Profile Class.

default_eac - The Researched Default Estimated Annual Consumption for the GSP Group / Profile Class combination (this is referred to as average EAC in various places for historical reasons - CR487).

4.3.24 Table edb_av_frac_y_cons

The table edb_av_frac_y_cons is created from the entity 'Average Fraction of Yearly Consumption. This table holds a set of Average Fraction of Yearly Consumption records which are effective from a given Settlement Date.

Table Description

gsp_group_id	varchar2(2)	not null,
std_sett_config_id	varchar2(4)	not null,
t_p_regime_id	varchar2(5)	not null,
profile_class_id	number(2)	not null,
eff_from_sett_date	date	not null,
eff_to_sett_date	date	not null,
	default	'31-DEC-4712'
av_frac_y_con	number(7,6)	not null

Primary Key	efyc_pk	gsp_group_id, std_sett_config_id, t_p_regime_id profile_class_id

Comments :

eff_from_sett_date - The first Settlement Date for which an Average Fraction of Yearly Consumption is effective.

eff_to_sett_date - The last Settlement Date for which an Average Fraction of Yearly Consumption is effective.

gsp_group_id - The nationally unique identifier of a GSP Group.

std_sett_config_id - The nationally unique identifier of a Standard Settlement Configuration.

profile_class_id - The nationally unique identifier of a Profile Class.

t_p_regime_id - The nationally unique identifier of a Time Pattern Regime.

av_frac_y_con - A standard positive factor, which determines the average fraction of consumption which is attributed to a particular combination of Measurement Requirement, Profile Class and GSP Group.

4.3.25 Table edb_demand_control_event

The table edb_demand_control_event is created from the entity 'Demand Control Event'. This table holds the details of Demand Control Event and the MSIDs impacted by the event.

Table Description

distributor_id	varchar2(4)	not null,
dce_id	varchar2(5)	not null,
start_date_time	date	not null,
end_date_time	date	not null,
msi_id	number(13)	not null,
file_seq_num	number(9, 0)	not null,
pd_flag	varchar2(3)	null

Primary Key	DCE_PK	distributor_id, dce_id, msi_id

Comments~~-~~:

distributor_id - LDSO from which Demand Control Event received

Dce_id - The unique identification of each Demand Control Event.

start_date_time – The start date time of the Demand Control Event.

end_date_time - The end date time of the Demand Control Event

msi_id - The metering system id impacted by the event.

file_seq_num - The unique identifier of the Demand Control Event file

4.3.26 Table edb_demand_dis_volume

The table edb_demand_dis_volume is created from the entity 'voluntary Demand Disconnection'. This table holds the details of Demand Control Event and the MSIDs impacted by the event.

Table Description

demand_control_event_id	varchar2(5)	not null ,
start_date	date	not null ,
end_date	date	not null ,
metering_system_id	number(13, 0)	not null ,
measurement_quantity_id	varchar2(19)	null ,
supplier_id	varchar2(4)	null ,
sett_date	date	null ,
demand_side_action_volume	varchar2(19)	null ,
file_seq_num	number(9, 0)	not null

~~PRIMARY KEY (dce_id,msi_id)~~

Comments~~-~~:

Dce_id - The unique identification of each Demand Control Event.

start_date_time – The start date time of the Demand Control Event.

end_date_time - The end date time of the Demand Control Event

METERING_SYSTEM_ID - The metering system id impacted by the event.

MEASUREMENT_QUANTITY_ID – The measurement quantity id of the MSID

SUPPLIER_ID – The supplier appointed to the MSID

SETT_DATE – The settlement date when the disconnection event happened

DEMAND_SIDE_ACTION_VOLUME – Estimated HH Demand Disconnection Volume

file_seq_num - The unique identifier of the Demand Disconnection Volume file

4.3.27 Table EDB_DAILY_PROFILE_DATA_PPC

The table EDB_DAILY_PROFILE_DATA_PPC is created from the entity 'Daily Profile Data'. This table holds the daily Period Profile Coefficient data report.

Table Description

```
sett_date     DATE,
sett_type     VARCHAR2(3 BYTE),
run_numbr  NUMBER(9),
rdt_usr       VARCHAR2(8 BYTE),
rdt_rpt_prm_1     VARCHAR2(30 BYTE),
rdt_rpt_prm_2     VARCHAR2(30 BYTE),
hdr_prof_date     DATE,
hdr_prof_time     VARCHAR2(6 BYTE),
gsp_grp_id  VARCHAR2(5 BYTE),
gsp_act_noon      NUMBER(4,1),
gsp_noon_eff      NUMBER(4,1),
gsp_time_sunst    VARCHAR2(6 BYTE),
gsp_sunst_val     VARCHAR2(5 BYTE),
pcl_cls_id        NUMBER(2),
ssc_confg_id      VARCHAR2(5 BYTE),
vmr_tpr_id        VARCHAR2(5 BYTE),
ppc_pcv_sp_1    NUMBER(14,13),
ppc_rsi_sp_1      CHAR(1),
ppc_pcv_sp_2    NUMBER(14,13),
ppc_rsi_sp_2      CHAR(1),
ppc_pcv_sp_3    NUMBER(14,13),
ppc_rsi_sp_3      CHAR(1),
...
ppc_pcv_sp_47   NUMBER(14,13),
ppc_rsi_sp_47     CHAR(1),
ppc_pcv_sp_48   NUMBER(14,13),
ppc_rsi_sp_48     CHAR(1),
ppc_pcv_sp_49   NUMBER(14,13),
ppc_rsi_sp_49     CHAR(1),
ppc_pcv_sp_50   NUMBER(14,13),
```

ppc_rsi_sp_50 CHAR(1),

Primary Key DPR_PK SETT_DATE,
GSP_GRP_ID,
PCL_CLS_ID,
SSC_CONFG_ID,
VMR_TPR_ID

Comments:

sett_date – The settlement date

sett_type – The run type

run_numbr - The unique run number used to identify the

rdt_usr – The user of the report

rdt_rpt_prm_1 – The parameter received in the report

rdt_rpt_prm_2 – The parameter received in the report

hdr_prof_date – The Date when the profiling was done

hdr_prof_time – The Time when the profiling was done

gsp_grp_id - Gsp group id

gsp_act_noon – Noon temperature

gsp_noon_eff – Noon effective temperature

gsp_time_sunst – The sunset time

gsp_sunst_val – The sunset time in minutes

ssc_confg_id – The Standard Settlement Configuration id

pcl_cls_id - The unique identifier for the profile class

vmr_tpr_id – The Time Pattern Regime id

ppc_pcv_sp_1..50 – The Period Profile Coefficient Value for all 50 settlement period

4.4 Audit Log

The following changes made via the EAC/AA User Interface are recorded in an audit log:

- changes to existing Smoothing Parameter data
- addition or deletion of users
- granting or revoking of a user's roles

The logging mechanism and the details of the data logged are described in the Maintain Calculation Parameter (ECP) and User Administration (EUA) subsystem sections.

4.5 Archive

It is envisaged that the EAC will be archived approximately 25 months after the latest settlement date on a daily basis. The process will allow the EAC/AA Systems Manager to remove Daily Profile Coefficients and Smoothing Parameters from the system to a tape storage. The Smoothing Parameter in effect for each Settlement Day will also be archived. The volume of data to be archived is predicted to be approximately 1.08 Gigabytes, this value has been calculated based on the following formula:

Total Bytes Archived = Average Occurrence * Approximate Bytes per Row

Given the potential volume of the data that will need to be archived, temporary tables will be used to store information about the rows to be deleted prior to the archive procedure writing the information to the tape.

For the purposes of this document it is assumed that temporary tables will be created and dropped by the relevant procedures to achieve this. However, these tables maybe modelled as permanent tables during the physical implementation of the database should the performance prove unsatisfactory.

4.6 Database Sizing

The table sizes have been calculated using the following formula:

Bytes Required = Approximate Bytes per Row * Number of Rows

Oracle Overheads = Bytes Required * 10%

Total Bytes Required = Bytes Required + Oracle Overheads

In the table below only the tables of significant sizes are included in the estimation:

Table	**Bytes per Row**	**Number Of Rows**	**Predicted Size In Gigabytes**
edb_data_files	121	100000	0.011
edb_daily_profile_coefficients	51	146000000	6.94
Oracle overheads @ 10%			0.71
Total			7.65

Total size required for EAC data is estimated to be approximately 7.65 Gigabytes over a period of 2 years.

The figure of 7.65 Gigabytes does not include space required for implementation of indexes, temporary tables and all the additional space necessary for the implementation of the EAC/AA physical database.

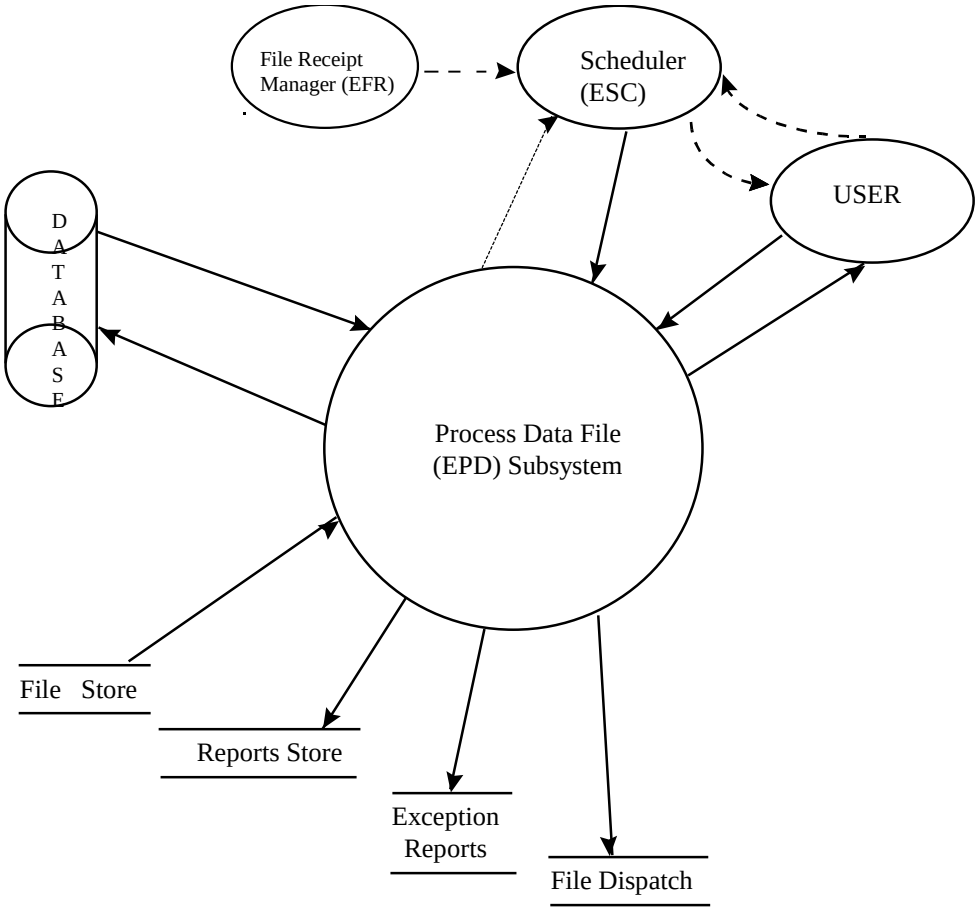
5 Subsystem EPD Specifications

5.1 Introduction

This subsystem loads the Daily Profile Coefficients files received from the ISR Agent, and processes the EAC/AA and Deemed Meter Advance Calculation Request files, delivering the calculation results in output files. These are batch processes.

These batch processes are initiated from the User Interface within this subsystem in Manual Mode, otherwise automatically from the File Receipt Manager Subsystem.

5.2 Subsystem Context



5.2.1 User Interface (Manual Mode Only)

In Manual Mode, the communications between the EAC/AA user and the Process Data File (EPD) subsystem is achieved via the form EPD_PDF. This form initiates the EPD background processes by sending the details of the background procedures to the Scheduler (ESC) via the database table edb_jobs. This is achieved by populating the details of jobs to be executed in edb_jobs table. The Scheduler (ESC) will then Schedule the procedure for execution in the background.

5.2.2 Scheduler (ESC) Interface

In Manual Mode, the name of the batch procedure within the subsystem and the parameters necessary for the execution e.g. the unique File Sequence Number are sent to the Scheduler subsystem (ESC) by the user interface. This is achieved by calling a procedure at the User Interface to populate the edb_jobs table. The confirmation of this is then sent back to user by returning success when calling the procedure. The details of the data passed from the user interface to the back end procedures are details in the subsystem processing section.

In Automatic Mode, this processing is done by the File Receipt Manager (EFR) Subsystem.

In both Manual and Automatic Modes, once the batch process is successfully queued, the initiation of the batch process is handled by the Scheduler (ESC) subsystem.

5.2.3 Database Interface

There are two categories of database interactions within this subsystem.

- Online interactions (Manual Mode only)
- Offline interactions

The Online database interactions are handled by the form EPD_PDF. The details of the database interactions by this form are included in the form specifications.

The Offline database interactions are handled by the batch processes initiated by the Scheduler (ESC), the details of these interactions are included either in the relevant procedure sections.

5.2.4 File Store Interface

The File Store is the physical location from which the files necessary for the operations carried out by this subsystem are extracted from. The details of the files are stored in the database by the subsystem File Receipt Manager (EFR). The details of the files are passed onto the procedures contained within this subsystem for processing.

The procedures within this subsystem will extract the files from this File Store for processing. The File Store will be a directory named E_files_in, its physical location and implementation will be dependent on the target machine.

5.2.5 Reports Interface

The Reports produced as a result of execution of the processes within the Process Data File (EPD) subsystem, as detailed in the relevant procedure specifications.

The Reports store will be a directory named E_report, its physical location and implementation will be dependent on the target machine.

5.2.6 Exception Interface

The details of exceptions produced as result of execution of the processes within the Process Data File (EPD) subsystem, as detailed in the relevant procedure specifications are placed in this area.

The exceptions store will be a directory named E_exception, its physical location and implementation will be dependent on the target machine.

The EPD_EAC process produces two machine-readable exception reports instead of human-readable ones. These are stored in a directory E_mr_reports. (When the user first views the reports using the ERP Select Reports form, then a human-readable report is created from the machine-readable one and put in the E_exception directory).

5.2.7 File Dispatch Interface

The files relating to calculations carried out by the processes within this subsystem are placed in this area. The data contained within these files are outlined in section 3.1 and their production will be described in the relevant procedure specifications for this subsystem.

The files placed in this area will be intended for use by the Non-HH Data Collector. The File Dispatch store will be a directory named E_files_out, its physical location and implementation will be dependent on the target machine.

5.3 Subsystem Processing

This subsystem provides the functionality associated with performing the calculations EAC/AA and Deemed Meter Advances. Additionally, it provides the facility for loading of Daily Profile Coefficients from ISR Agent.

In Manual Mode only, this subsystem contains the form EPD_PDF. The specification of the form is outlined in a later section. The form allows the EAC/AA users to initiate the batch processes via the Scheduler Subsystem (ESC) on the server. The batch processes will be responsible for calculations of EAC/AA, Deemed Meter Advances and loading of Daily Profile Coefficients.

In Automatic Mode, the form EPD_DPF is not used. Instead, the EPD batch processes are initiated by the File Receipt Manager Subsystem (FRM) via the Scheduler Subsystem.

Procedures EPD_EAC, EPD_DMA and EPD_DPC are described in the sections to follow.

The data passed between the form and the subsystem batch processes in Manual Mode via the Scheduler (ESC) subsystem is as follows:

From	To	Data
FORM EPD_PDF	PROCEDURE EPD_EAC	EAC/AA Request File Details "EPD_EAC" file_seq_num
FORM EPD_PDF	PROCEDURE EPD_DMA	Deemed Meter Advance Request File Details "EPD_DMA" file_seq_num
FORM EPD_PDF	PROCEDURE EPD_DPC	Daily Profile Coefficients File Details "EPD_DPC" file_seq_num Or the following details to indicate processing of all the valid files are required. "EPD_DPC" -1

In Automatic Mode, the same data is passed from the File Receipt Manager to the subsystem batch processes via the Scheduler, except that it is always the file_seq_num that is passed to EPD_DPC, never -1.

5.4 Data Usage

All the data accessed within the subsystem is held on the database. The System Data section provides the cross reference for the components of the subsystem and the tables and their mode of access.

5.4.1 System Data

The details of the tables accessed by this subsystem are as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
FORM EPD_PDF	edb_ref_domains				X
	edb_system_configuration				X
	edb_ref_values				X
	edb_data_files		X		X
	edb_jobs	X			
PROCEDURE EPD_EAC	edb_data_files	X	X		X
	edb_daily_profile_coefficients				X
	edb_system_configuration				X
	edb_tolerance_values				X
	edb_smoothing_parameters				X
	edb_gspg_pc_def_eac				X
	edb_av_frac_y_cons				X
	edb_market_participant_roles				X
	edb_ref_domains				X
	edb_ref_values				X
	edb_jobs				X
PROCEDURE EPD_DMA	edb_data_files	X	X		X
	edb_daily_profile_coefficients				X
	edb_system_configuration				X
	edb_market_participant_roles				X
	edb_ref_domains				X

	edb_ref_values				X
	edb_jobs				X
PROCEDURE EPD_DPC	edb_data_files		X		X
	edb_daily_profile_coefficients	X		X	X
	edb_system_configuration				X
	edb_market_participant_roles				X
	edb_jobs				X
	edb_ref_domains				X
	edb_ref_values				X
	edb_std_settlement_configs				X
PROCEDURE EPD_DCE	edb_data_files		X		X
	edb_demand_control_event	X		X	X
	edb_system_configuration				X
	edb_market_participant_roles				X
	edb_jobs				X
	edb_ref_domains				X
	edb_ref_values				X
PROCEDURE EPD_DDV	edb_data_files		X		X
	edb_demand_dis_volume	X		X	X
	edb_system_configuration				X
	edb_market_participant_roles				X
	edb_jobs				X
	edb_ref_domains				X
	edb_ref_values				X
PROCEDURE EPD_PPC	edb_data_files		X		X
	edb_daily_profile_data_ppc	X		X	X
	edb_system_configuration				X

	edb_market_participant_roles				X
	edb_jobs				X
	edb_ref_domains				X

5.4.2 Local Data

No local data is held within this subsystem.

5.5 Procedure Details

This section describes the various components of the Process Data File (EPD) subsystem. A description of the procedures within the subsystem is included in this section.

5.5.1 PROCEDURE EPD_EAC

The calculations of EAC/AA based for the data sent by the Non-HH Data Collector are handled by this procedure.

The data sent by the Non-HH Data Collector and the file containing the results of the calculations carried out by this procedure have been specified in section 3.1. In addition to the file containing the results of the calculations, this module produces two machine-readable Exception Reports and a human-readable Control Report. One exception report shows the numbers of Metering Systems processed and a list of all the failures encountered and the reason for those failures. The second exception report shows details of Metering Systems whose calculated Annualised Advance is outside the Annualised Advance Tolerance Values for the relevant GSP Group(s) and Profile Class(es). A separate exception will be reported for each GSP Group/Profile Class Tolerance Values that the calculated Annualised Advance is outside. The Control Report contains all exceptions sent to these two reports and also shows informational messages. More information on failure reasons is given after the pseudocode below.

This procedure is initiated by the common Scheduler (ESC) subsystem. The list and mode of the database tables accessed by this procedure are listed in the System Data section.

The processing carried out by the procedure is as follows:

Procedure initiated by the Scheduler (ESC) subsystem, a unique job_number identifier is passed into the procedure in order to establish the file details.

Read the file details from edb_jobs using the unique job identifier.

Find file details in edb_data_files table.

Find file location details using the edb_data_files.location_id and finding the relevant details of the directory location from edb_ref_values.

Check file exists in the location (abort processing if the file not present)

Read File Contents

For each Metering System

For each Meter Advance of each Settlement Register read from the file

Calculate the Fraction of Yearly Consumption (FYC) based on the Profile Class Details, GSP Group Details and the Time Pattern Regime Id contained in the file, and the corresponding values in the edb_daily_profile_coefficients table. The details of the calculations are included in [EFUNDEF] 3.1.

If the value of FYC is non-zero then set Annualised Advance to the supplied Meter Advance divided by FYC.

If the FYC is zero and the supplied Meter Advance is non-zero, then set Annualised Advance to zero, and report a warning in the Control Report.

If the FYC is zero and the supplied Meter Advance is zero, then set Annualised Advance to zero.

Compare the Annualised Advance to the high and low Annualised Advance Tolerance Values for the Metering System's GSP Group and Profile Class. If the Metering System has changed GSP Group and/or Profile Class during the Meter Advance Period, compare the Annualised Advance to all relevant Annualised Advance Tolerance Values for the Metering System's GSP Group(s) and Profile Class(es). If the Annualised Advance is greater than the high Annualised Advance Tolerance Value or the Annualised Advance is smaller than the low Annualised Advance Tolerance Value then report an exception.

Increment by 1 the number of Annualised Advances Calculated for all the Daily Profile Coefficient files used in the calculations.

If the Metering System has not changed Profile Class during Meter Advance period, established from the effective from Settlement Date read from the file

Calculate a value for the Metering System EAC based on the value of the Smoothing Parameter in effect on that settlement Date edb_smoothing_parameters and the value of FYC calculated already.

If the calculated EAC value is negative then read from the database the GSP Group Profile Class Default EAC (for the Metering System's Profile Class Id and GSP Group Id), and also read the Average Fraction of Yearly Consumption (for the Metering System's Profile Class Id, GSP Group Id and Standard Settlement Configuration Id and the Settlement Register's Time Pattern Regime). Multiply these two values together to obtain a new EAC and output this EAC in place of the negative EAC. Report a warning to the control report including the replaced value and the new value.

For each Annualised Advance store the data required to be written to the output file. If the EAC has not been calculated a null will be output, the Effective Settlement Date {EAC} will also be set to null. Where EAC value is calculated the values of Effective Settlement Date {EAC} is set to the after the Effective To Settlement Date {MAC}.

If all the Registers on the Metering System have been processed successfully, write to the output file a record for the Metering System, followed by one for each of the Registers.

Populate the header and footer of the output file. This involves doing a count of the fields and generating a checksum.

Update edb_data_files.file_status to completed.

Update the edb_data_files. file_processed_date to the current date and time.

Insert a new row in edb_data_files for the file containing the calculations results.

A control report as described in the following section containing the exceptions and other control details will be produced. In addition to the control report, two machine-readable exception reports will also be produced. All details are sent to the control file. One Exception Report will only contain details of Metering Systems whose Annualised Advances are outside the Annualised Advance Tolerance Values for the Metering System's GSP Group(s) and Profile Class(es). The other Exception Report will contain only the details marked as such.

- All the negative values of Meter Advances, AAs and Daily Profile Coefficient will be reported on.
- For negative EACs, the negative value will have been replaced with a default value – both are reported. (Exception Report).
- All the unprocessed metering systems with an advance period longer than 2 years will be reported on (Exception Report).
- A valid row of edb_daily_profile_coefficients, with its settlement_date matching the meter advance period could not be found. (Exception report)
- No edb_daily_profile_coefficients records exists for the Settlement Date. (Exception report)
- Where the Meter Advance read from the file is non-zero and FYC is calculated to be zero.

In addition to the textual description of the exception condition, the Exception Report (but not the Control Report) contains a three-character Reason Code. A complete list of Reason Codes is given in the following table:

Reason Code	Description
EAF	No AFYC exists for negative EAC, no EAC will be calculated.
EDE	No Default EAC exists for negative EAC, no EAC will be calculated.
EDG	A valid row of edb_daily_profile_coefficients, with its settlement_date matching the meter advance period could not be found.
EDS	No edb_daily_profile_coefficients records exist for the Settlement Date.
EGM	GSP range does not cover Meter Advance Period
EIC	Internal Error - Success, Failed and Total Counts do not match
EIF	Internal Error - Fatal Error
EIO	Internal Error - Oracle Error
EMT	Meter Advance Period longer than 2 years.
ENG	Negative EAC has been replaced with a default value
EPM	Profile Class range does not cover Meter Advance Period
ESN	No Effective Smoothing Parameter, no EAC will be calculated.
EUA	Annualised advance outside tolerance of reasonableness.

The actual error messages outputted by the system are given below:

Reason Code	Actual error message
EAF	No AFYC exists for GSP %s PC %s SSC %s TP %s, no EAC will be calculated.
EDE	No Default EAC for GSP %s PC %s , no EAC will be calculated.
EDG	No DPC for GSP %s PC %s SSC %s TP %s Sett Date %s
EDS	No DPC values for Sett Date %s.
EGM	MAP not covered by GSP range, first GSP=%s, range start=%s at line %d.
EIC	Non-matching success & failed counts. Total %ld, success %ld, failed %ld
EIF	Internal error - various error messages, see EOPSGDE for details of each message.
EIO	Oracle error - various error messages, see EOPSGDE for details of each message.
EMT	Meter Advance Period longer than %d Days.
ENG	Negative EAC %12.1f replaced by %12.1f for TP %s
EPM	MAP not covered by PCI range, first PCI=%s, range start=%s at line %d.
ESN	No Effective Smoothing Parameter, no EAC will be calculated.
EUA	Large AA %.1f (%.0f), MA %.1f, PC %s, SSC %s, TP %s

The output file containing the results of the calculation will be deleted, if the calculation aborts due to unrecoverable and/or Oracle errors.

For any non-fatal errors an error message will be raised in the control file (and exception report where appropriate) and the next Metering System in the data file will be processed. The whole data file will only be rejected if a fatal error is encountered.

The non fatal errors will be :

- Fields which fail validation within a MSI record
- Fields which fail validation or are missing within PCI, GSP, SRD records
- Incorrect ordering of PCI, GSP, SRD records within a MPAN
- Missing PCI, GSP, SRD records within a MPAN
- Advance period is not fully covered by profile classes and GSP groups

The fatal errors will be :

- Bad record types
- Failure in writing to Control File
- Memory problems while processing

5.5.2 REPORT EPD_EAC_CNTRL_REP

Report name: Estimated Annual Consumption/Annualised Advance Control Report.

This report is generated by the EPD_EAC procedure.

The report layout is as follows:

Run Time: 10/06/1997 13:48:53 Organisation: An Electricity Company

Estimated Annual Consumption/Annualised Advance Control Report

User: OPSSUPER

Input File : EEVC0103.dat
Output File: DSEC53

Metering System	From	To	Details
1	01/01/1997	10/01/1997	No DPC for GSP G2 PC 1 SSC SSC1 TP TPR02 Sett Date 01/01/1997
1	01/01/1997	10/01/1997	No DPC for GSP G2 PC 1 SSC SSC1 TP TPR03 Sett Date 01/01/1997
2	01/01/1997	11/01/1997	No DPC values for Sett Date 11/01/1997
3	01/01/1997	10/01/1997	Negative EAC -4346655923.5 replaced by 123456.7 for TP TPR01
3	01/01/1997	10/01/1997	Negative AA -11515214.8 for TP TPR01
3	01/01/1997	10/01/1997	Negative Meter Advance -6789012.3 for TP TPR01
3	01/01/1997	10/01/1997	Negative DPC -0.0521753037605 for GSP G5 PC 1 SSC SSC1 TP TPR02 Sett 01/01/1997
3	01/01/1997	10/01/1997	Negative EAC -17286087132.0 replaced by 123456.7 for TP TPR02
3	01/01/1997	10/01/1997	Negative AA -19574053.1 for TP TPR02
3	01/01/1997	10/01/1997	Negative Meter Advance -8901234.5 for TP TPR02
3	01/01/1997	10/01/1997	Negative EAC -22712729382.1 replaced by 123456.7 for TP TPR03
3	01/01/1997	10/01/1997	Negative AA -226317.3 for TP TPR03
3	01/01/1997	10/01/1997	Negative Meter Advance -123456.7 for TP TPR03
3	01/01/1997	10/01/1997	Negative DPC -0.0521075489287 for GSP G5 PC 1 SSC SSC1 TP TPR04 Sett 01/01/1997
3	01/01/1997	10/01/1997	Negative EAC -45062203624.3 replaced by 123456.7 for TP TPR04
3	01/01/1997	10/01/1997	Negative AA -6015808.6 for TP TPR04
3	01/01/1997	10/01/1997	Negative Meter Advance -2345678.9 for TP TPR04
4	01/01/1997	10/01/1997	Large AA - 123456 (500000), MA 12345678, PC 01, SSC SSC1, TP TPR01

Page: 1

Run Time: 10/06/1997 13:48:53 Organisation: An Electricity Company

Estimated Annual Consumption/Annualised Advance Control Report

Processing Details:

No. of Metering Systems Read : 4
No. of Metering Systems Processed Successfully : 2
No. of Metering Systems Processed Unsuccessfully: 2
No. of MS for which Negative EACs replaced :1

End of Report

Page: 2

5.5.3 REPORT EPD_EAC_EXCEP_REP

Report names: EAC/AA Calculation Exceptions

EAC/AA Tolerance Value Exceptions Report

These reports are generated by the EPD_EAC procedure which reports on the exceptions outlined in 'Estimate Annual Consumption' functional definition.

The layout of the machine-readable exception reports are given in section 3.1.5 External Interfaces EAC/AA Exceptions Report and 3.1.6 External Interface EAC/AA Tolerance Value Exceptions Report. The layout of the human-readable reports generated from them by the ERP Report Formatter when the user requests to view the report is as follows:

EAC/AA Calculation Exceptions

```
EAC/AA Calculation Exceptions                          An Electricity Company                    10/06/1997 13:48

User: OPSSUPER

Input File : EMVC0102.dat
Output File: DSEC1482

Metering      Reason
System        Code         From        To          Details
--------      ------       ----------  ----------  ------------------------------------------------------------
1             EDG          01/01/1997  10/01/1997  No DPC for GSP G2 PC 1 SSC SSC1 TP TPR02 Sett Date 01/01/1997
1             EDG          01/01/1997  10/01/1997  No DPC for GSP G2 PC 1 SSC SSC1 TP TPR03 Sett Date 01/01/1997
2             EDS          01/01/1997  11/01/1997  No DPC values for Sett Date 11/01/1997
No. of Metering Systems Processed Unsuccessfully: 2

Page:  1
```

EAC/AA AA Tolerance Exceptions Report

```
EAC/AA AA Tolerance Exceptions                          An Electricity Company                    10/06/2000
13:48

User: OPSSUPER

Input File : EMVC0102.dat
Output File: DSEC1483

     Metering     Annualised    Meter                          Profile
       System        Advance  Advance From        To          Class SSC  TPR   High AA       Low AA
------------- -------------- -------- ---------- ---------- ------- ---- ----- ------------ ------------
1234567890123 987654321011.1 12345678 01/01/2000 10/01/2000 01      SC01 TPR01 222222222222 -11111111111
1234567890124            100       20 01/01/2000 10/03/2000 02      SC02 TPR03           80          -10
Number of Exceptions:     2

Page:  1
```

5.5.4 PROCEDURE EPD_DMA

The calculations of Deemed Meter Advance based on the data sent by the Non-HH Data Collector are handled by this procedure.

The data sent by the Non-HH Data Collector and the file containing the results of the calculations carried out by this procedure have been specified in section 3.1. In addition to the file containing the results of the calculations, this procedure produces a further file containing details of the

numbers of Metering Systems processed and a list of all the failures encountered and the reason for those failures.

This procedure is initiated by the common Scheduler (ESC) subsystem. The list and mode of the database tables accessed by this procedure are listed in the System Data section.

The processing carried out by the procedure is as follows:

Procedure initiated by the Scheduler (ESC) subsystem, a unique job identifier is passed into the procedure in order to establish the file details.

Read the file details from edb_jobs using the unique job identifier.

Find file details in edb_data_files table.

Find file location details using the edb_data_files.location_id and finding the relevant details of the directory location from edb_ref_values.

Check file exists in the location (abort processing if the file not present)

Read File Contents

For each Settlement Register the process of calculating the Deemed Meter Advance is as follows:

Write the Settlement Register details to the output file.

Fetch the rows of edb_daily_profile_coefficients corresponding to the combination of Standard Settlement Configuration Id, GSP Group Id, Time pattern Regime Id and Profile Class Id and their corresponding effective dates (if present) read from the file.

Calculate the value of Deemed Meter Advance based on the summation for all days between the first settlement date and the last of the Daily Profile Coefficients and the value of EAC or Annualised Advance supplied in the file for the Settlement Register. The details of the calculations are included in [EFUNDEF] 3.1.

Write a row in the output file for each of DMA values calculated.

Populate the header and footer of the output file. This involves doing a count of the fields and generating a checksum.

Update edb_data_files.file_status to completed.

Update the edb_data_files. file_processed_date to the current date and time.

Insert a new row in edb_data_files for the file containing the calculation results.

A control report as described in the following section containing the exceptions and other control details will be produced.

Some of the details are also sent to an Exception Report. Exceptions are reported for the following cases:

- Where a corresponding edb_daily_profile_coefficients row for a combination of an effective GSP group, Profile Class, Standard Settlement Configuration and Time Pattern Regime is not found for any Settlement Day within the Meter Advance Period.
- No edb_daily_profile_coefficients records exists for the Settlement Date.

The output file containing the results of the calculation will be deleted, if the calculation aborts due to unrecoverable and/or Oracle errors.

For any non-fatal errors an error message will be raised in the control file (and exception report where appropriate) and the next Metering System in the data file will be processed. The whole data file will only be rejected if a fatal error is encountered.

The non fatal errors will be :

- Fields which fail validation within a MSI record
- Fields which fail validation or are missing within PCI, GSP, EAA records
- Incorrect ordering of PCI, GSP, EAA records within a MPAN
- Missing PCI, GSP, EAA records within a MPAN
- Advance period is not fully covered by profile classes and GSP groups

The fatal errors will be :

- Bad record types
- Failure in writing to Control File
- Memory problems while processing

5.5.5 REPORT EPD_DMA_CNTRL_REP

Report name: Determine Deemed Meter Advance Control Report

This report is generated by the EPD_DMA procedure.

The report layout is as follows:

Run Time: 10/06/1997 15:32:03 Organisation: An Electricity Company

Deemed Meter Advance Control Report

User: OPSSUPER

Input File : EMVC0102.dat
Output File: DSEC1482

Metering System	From	To	Details
1	01/01/1997	10/01/1997	No DPC for GSP G2 PC 1 SSC SSC1 TP TPR02 Sett Date 01/01/1997
1	01/01/1997	10/01/1997	Negative EAC/AA -22345678901 200001 for TP TPR02
2	01/01/1997	11/01/1997	No DPC for GSP G2 PC 1 SSC SSC1 TP TPR03 Sett Date 01/01/1997
2	01/01/1997	11/01/1997	No DPC values for Sett Date 11/01/1997

Page: 1

Run Time: 10/06/1997 15:32:03 Organisation: An Electricity Company

Deemed Meter Advance Control Report

Processing Details:

No. of Metering Systems Read : 4
No. of Metering Systems Processed Successfully : 2
No. of Metering Systems Processed Unsuccessfully: 2

End of Report

Page: 2

5.5.6 REPORT EPD_DMA_EXCEP_REP

Report name: Determine Deemed Meter Advance Exception Report.

This report is generated by the EPD_DMA procedure which reports on the exceptions outlined in the 'Determine Deemed Meter Advance' functional definition.

The report layout is as follows:

Run Time: 11/06/1997 13:48:53 Organisation: An Electricity Company

Deemed Meter Advance Exception Report

User: OPSSUPER

Input File : EEVC0104.dat
Output File: DSEC53

Metering System	From	To	Details
1	01/01/1997	10/01/1997	No DPC for GSP G2 PC 1 SSC SSC1 TP TPR02 Sett Date 01/01/1997
1	01/01/1997	10/01/1997	Negative EAC/AA -22345678901 200001 for TP TPR02
2	01/01/1997	11/01/1997	No DPC for GSP G2 PC 1 SSC SSC1 TP TPR03 Sett Date 01/01/1997
2	01/01/1997	11/01/1997	No DPC values for Sett Date 11/01/1997

Page: 1

Run Time: 11/06/1997 13:48:53 Organisation: An Electricity Company

Deemed Meter Advance Exception Report

Processing Details:
No. of Metering Systems Processed Unsuccessfully: 2

End of Report

Page: 2

5.5.7 PROCEDURE EPD_DPC

This procedure is responsible for loading of Daily Profile Coefficients contained in files sent to the EAC/AA system by the ISR Agent. The details of the Daily Profile Coefficient files are specified in section 3.1.

If EAC/AA was installed to run in Manual Mode, the procedure can be invoked either to process an individual Daily Profile Coefficients file, or to

process all unprocessed files, depending on the option that the user chose on the Process Data Files form.

If EAC/AA was installed to run in Automatic Mode, the procedure is invoked whenever the File Receipt Manager receives a new Daily Profile Coefficient file. In this case the procedure always processes that file and any files which had arrived earlier but have not yet been loaded.

The individual processing of each file is the same in both the single file load and multiple file loads.

Two types of files are handled by this procedure. The format of the files is as given in section 3.1 and both types of the files have the same format. However, one contains data for only one GSP Group and the other contains data for all the GSP Groups. These types are referred to as "Type 2" and "Type 1" respectively.

Where multiple files are being processed, the order that they are processed in is determined by the following rules:

- Files originating from the same ISR Agent are processed together
- Files are then processed in Settlement Date order
- If there are multiple files for the same Settlement Date and ISR Agent, load the highest version type 1 file, followed by any subsequent type 2 files with the highest run number, marking any older versions as processed but not loading them

It is important that files are processed in Settlement Date order without any gaps, and that within one Settlement Date, files are processed in the correct run number order for the same file type and (for type 2 files) the same GSP Group. Accordingly the following validation is run within the processing of each individual file:

- The very first Daily Profile Coefficient file of Type 1 from any participant processed by EAC/AA does not get checked.
- Do not allow Daily Profile Coefficient files to be loaded if there is not at least one file from the same ISR Agent for the previous Settlement Date.
- The exception to the above is if there is already at least one file from any ISR Agent loaded for the current Settlement Date. This implies it is a revised file.
- If there already is a file loaded with the same Settlement Date and originating ISR Agent with the same file type, and (for type 2 files) with the same GSP Group, and that has a higher run number than the new file, then do not allow the new file to be loaded.

The system rejects files containing DPCs for Scottish GSP Groups for Settlement Dates before the BETTA Start Date unless the files are from the Scottish ISR Agent. The system rejects files containing DPCs for Settlement Dates on or after the BETTA Start Date if the files are from the Scottish ISR Agent. Appropriate error messages are written to the

Exception Report file if these checks fail. The control report also documents the files that have failed.

The EPD_DPC procedure is initiated by the common Scheduler (ESC) subsystem. The list and mode of the database tables accessed by this procedure are listed in the System Data section.

The processing carried out by the procedure is as follows:

Procedure initiated by the Scheduler (ESC) subsystem, a unique job identifier is passed into the procedure in order to establish the file details.

Read the file details from edb_jobs using the unique job identifier.

Read edb_jobs.parameter1

Read edb_system_configuration.system_mode

If system_mode is set to 'M' (Manual)

If parameter1 value is -1

Process all data files whose status is set to 'M' (Multiple).

Order files as described above.

Else

Process data file identified by the File Sequence Number contained in parameter1.

If system_mode is set to 'A' (Automatic)

Process all data files whose status is set to 'M' (Multiple) and whose File Sequence Number is less than or equal to the File Sequence Number contained in parameter1.

Order files as described above.

The following steps are for each file being processed:

Find file details in edb_data_files table.

Find file location details using the edb_data_files.location_id and finding the relevant details of the directory location from edb_ref_values.

Check file exists in the location (abort processing if the file not present).

Read edb_data_files.file_content_code to establish if the file to be processed contains data for only one GSP Group (Type 2) or it contains data for all the GSP Groups (Type 1).

Read edb_data_files.gsp_group_id.

Read File Contents.

If File Type 1

Delete all rows of edb_daily_profile_coefficients, for all the GSP groups, with matching settlement date and Market Participant Id as those supplied by the file, keeping an accumulated count of number of Annualised Advances calculated previously using the edb_daily_profile_coefficients being replaced. All DPCs are associated with a file that has details of the Participant Id. The Participant Id is checked to ensure that DPCs are not deleted for a different DPC.

For each Daily Profile Coefficient read carry out the following processing:

insert the new rows of edb_daily_profile_coefficients if either the corresponding edb_std_settlement_configs does not exist or edb_std_settlement_configs.load_dpc is set to "Y".

Increment the count of number of edb_daily_profile_coefficients being loaded.

If File Type 2

Read edb_daily_profile_coefficients, if any existing rows for the gsp_group_id and settlement_date of the file then fail the operation.

For each Daily Profile Coefficient read carry out the following processing:

insert the new rows of edb_daily_profile_coefficients if either the corresponding edb_std_settlement_configs does not exist or edb_std_settlement_configs.load_dpc is set to "Y".

Increment the count of number of edb_daily_profile_coefficients being loaded.

Update edb_data_files.file_status to completed.

Update the edb_data_files. file_processed_date to the current date and time.

Where multiple files are being processed, if it is not possible to process one of the files for any reason (e.g. there is no data for the previous Settlement Date) then the process exits without attempting to process any further files. In this case, if system_mode is set to 'M' (Manual), it resets the edb_data_files.file_status of any unprocessed files to null from 'M' (Multiple) so that the EDP_PDF form will be able to display them again. If system_mode is set to 'A' (Automatic) however, it leaves the file status as 'M'.

A control report as described in the following section containing the details of the process will be produced as a result of this procedure.

An exception report will also be produced if the file(s) processed by this procedure fail to load for any reason. This includes the case of a file not being loaded because data for the previous Settlement Date is missing.

5.5.8 REPORT EPD_DPC_CNTRL_REP

Report name: Load Daily Profiles Control Report

This report is generated by the EPD_DPC procedure.

The report layout is as follows:

Run Time: 12/06/1997 11:14 Organisation: An Electricity Company

Load Daily Profile Coefficients Control Report

User: OPSSUPER

Settlement Date	File Name	No. of AAs Calculated	No. of DPCs Replaced	No. of DPCs Loaded	Details
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 6, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 7, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 11, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 14, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 17, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 18, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 21, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 28, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 29, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 32, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 39, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 42, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 43, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 45, GSP group G5
01/01/1997	epvc0102.dat				Negative DPC Loaded: Line 47, GSP group G5
02/01/1997	epvn0203.dat	0	0	320	
02/01/1997	eqvn0203.dat	0	0	64	
03/01/1997	epvn0304.dat	0	0	320	
03/01/1997	eqvn0304.dat	0	0	64	
04/01/1997	epvn0405.dat	0	0	320	
04/01/1997	eqvn0405.dat	0	0	64	
05/01/1997	epvn0506.dat	0	0	320	
05/01/1997	eqvn0506.dat	0	0	64	

Page: 1

Run Time: 12/06/1997 11:14 Organisation: An Electricity Company

Load Daily Profile Coefficients Control Report

End of Report

Page: 2

5.5.9 REPORT EPD_DPC_EXCEP_REP

Report name: Load Daily Profiles Exception Report

This report is generated by the EPD_DPC procedure which reports on the exceptions outlined in the 'Load Daily Profiles' functional definition.

The report layout is as follows:

Run Time: 12/06/1997 12:07 Organisation: An Electricity Company

Load Daily Profile Coefficients Exception Report

User: OPSSUPER

Settlement Date	File Name	Details
03/01/1997	eqvn0304.dat	DPC Validation Failed at Line 45

Page: 1

Run Time: 12/06/1997 12:07 Organisation: An Electricity Company

Load Daily Profile Coefficients Exception Report

End of Report

Page: 2

5.5.10 PROCEDURE EPD_DCE

This procedure is responsible for loading of Demand Control Event contained in files sent to the EAC/AA system by the LDOS.

If EAC/AA was installed to run in Manual Mode, the procedure can be invoked either to process an individual Demand Control Event, or to process all unprocessed files, depending on the option that the user chose on the Process Data Files form.

If EAC/AA was installed to run in Automatic Mode, the procedure is invoked whenever the File Receipt Manager receives a new Demand Control Event file. In this case the procedure always processes that file and any files which had arrived earlier but have not yet been loaded.

The individual processing of each file is the same in both the single file load and multiple file loads.

Where multiple files are being processed, they are processed in the order of received time.

The following validation is run within the processing of each individual file:

- If the DCE ID for a particular Distributor already exists in the EACAA database, the respective DCE ~~won't be loaded~~ records stored in database will be replaced by the one received in the file.
- If a MSID presents in more than once in a DCE, then the DCE id won't be loaded.
- If the end date and time is earlier than the start date time, the DCE id won't be loaded.
- If no DCE id is found in the file, the file will be rejected.

The EPD_DCE procedure is initiated by the common Scheduler (ESC) subsystem. The list and mode of the database tables accessed by this procedure are listed in the System Data section.

The processing carried out by the procedure is as follows:

Procedure initiated by the Scheduler (ESC) subsystem, a unique job identifier is passed into the procedure in order to establish the file details.

In addition to the textual description of the exception condition, the Exception Report (but not the Control Report) contains a three-character Reason Code. A complete list of Reason Codes is given in the following table:

Reason Code	Description
~~EDC~~	~~DCE id already exists~~
EDM	Duplicate MSID found
EDD	Duplicate Demand Control Event id found in the file
EDN	No DCE id found in the file
EED	End date and time is earlier than the start date and time

5.5.11 PROCEDURE EPD_DDV

This procedure is responsible for loading of Disconnected MSIDs and Estimated HH Demand Disconnection Volumes files sent to the EAC/AA system by the SVAA.

If EAC/AA was installed to run in Manual Mode, the procedure can be invoked either to process an individual Disconnected MSIDs and Estimated HH Demand Disconnection Volumes, or to process all unprocessed files, depending on the option that the user chose on the Process Data Files form.

If EAC/AA was installed to run in Automatic Mode, the procedure is invoked whenever the File Receipt Manager receives a new file. In this case the procedure always processes that file and any files which had arrived earlier but have not yet been loaded.

The individual processing of each file is the same in both the single file load and multiple file loads.

Where multiple files are being processed, they are processed in the order of received time.

The following validation is run within the processing of each individual file:

- If the DCE id already exists in the EACAA database, the DCE id and MSID stored in database will be replaced by the one received in the file.
- If a MSID presents in more than once in a DCE, then the DCE id won't be loaded.
- If the end date and time is earlier than the start date time, the DCE id won't be loaded.
- If no DCE id is found in the file, the file will be rejected.
- If a DCE id is not present in EDB_DEMAND_CONTROL_EVENT table, the DCE id will not be loaded.
- If a MSID is not present in EDB_DEMAND_CONTROL_EVENT table for the relevant DCE id, the DCE id will not be loaded.

In addition to the textual description of the exception condition, the Exception Report (but not the Control Report) contains a three-character Reason Code. A complete list of Reason Codes is given in the following table:

Reason Code	Description
EDM	Duplicate MSID found
EDD	Duplicate Demand Control Event id found in the file
EDN	No DCE id found in the file
EED	End date and time is earlier than the start date and time
EDP	No DCE id found in the EDB_DEMAND_CONTROL_EVENT
EMS	No MSID found in the EDB_DEMAND_CONTROL_EVENT

5.5.12 PROCEDURE EPD_PPC

This procedure is responsible for loading of Daily Profile Data Report files sent to the EAC/AA system by the SVAA.

If EAC/AA was installed to run in Manual Mode, the procedure can be invoked either to process an individual Daily Profile Data, or to process all

unprocessed files, depending on the option that the user chose on the Process Data Files form.

If EAC/AA was installed to run in Automatic Mode, the procedure is invoked whenever the File Receipt Manager receives a new file. In this case the procedure always processes that file and any files which had arrived earlier but have not yet been loaded.

The individual processing of each file is the same in both the single file load and multiple file loads.

Where multiple files are being processed, they are processed in the order of received time.

The following validation is run within the processing of each individual file:

- If the run number received in the Daily Profile Data file already exists in EAC/AA database, the file will be rejected.
- If the number of settlement period in a settlement day is more than the expected one (48 – Normal day, 46 – Short day, 50 – long day), the file will be rejected.
- If any duplicate TPR id is found in the file, then the file will be rejected.

In addition to the textual description of the exception condition, the Exception Report (but not the Control Report) contains a three-character Reason Code. A complete list of Reason Codes is given in the following table:

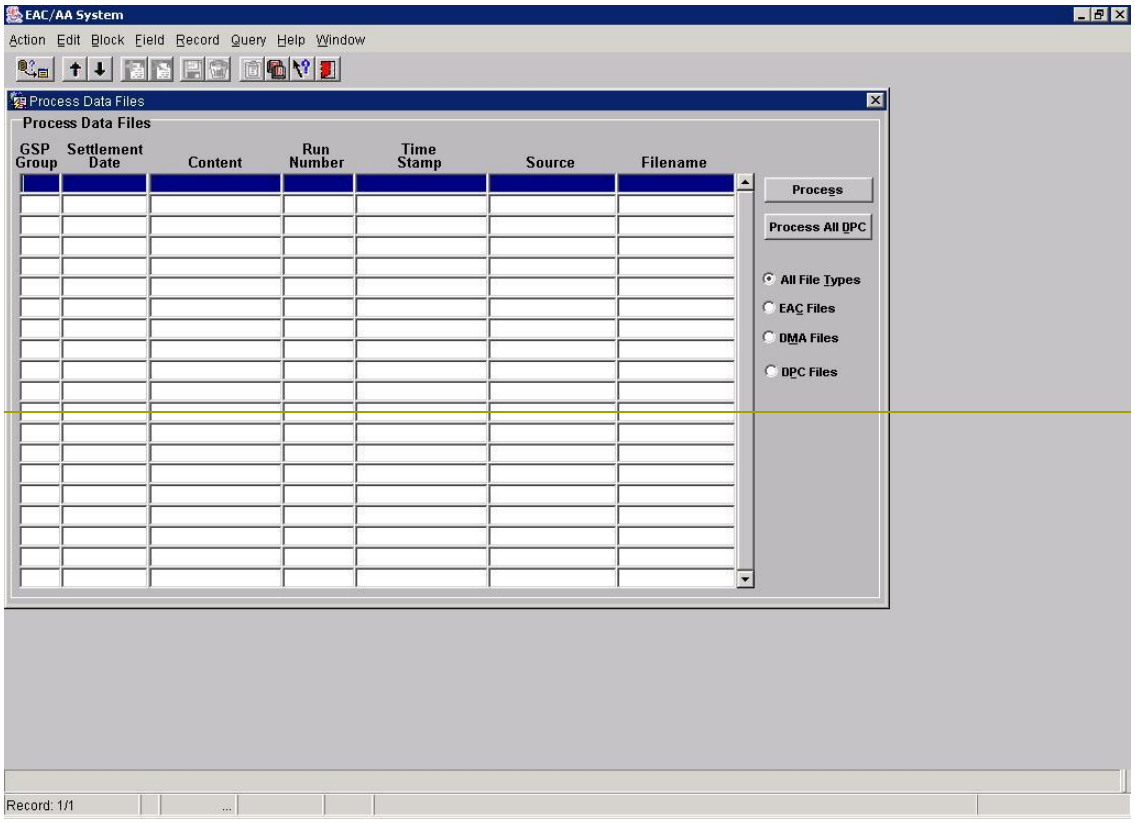
Reason Code	Description
EDR	The run number received in the file already exists
ESP	Unexpected Settlement Period data received
EDT	Duplicate TPR found in the file

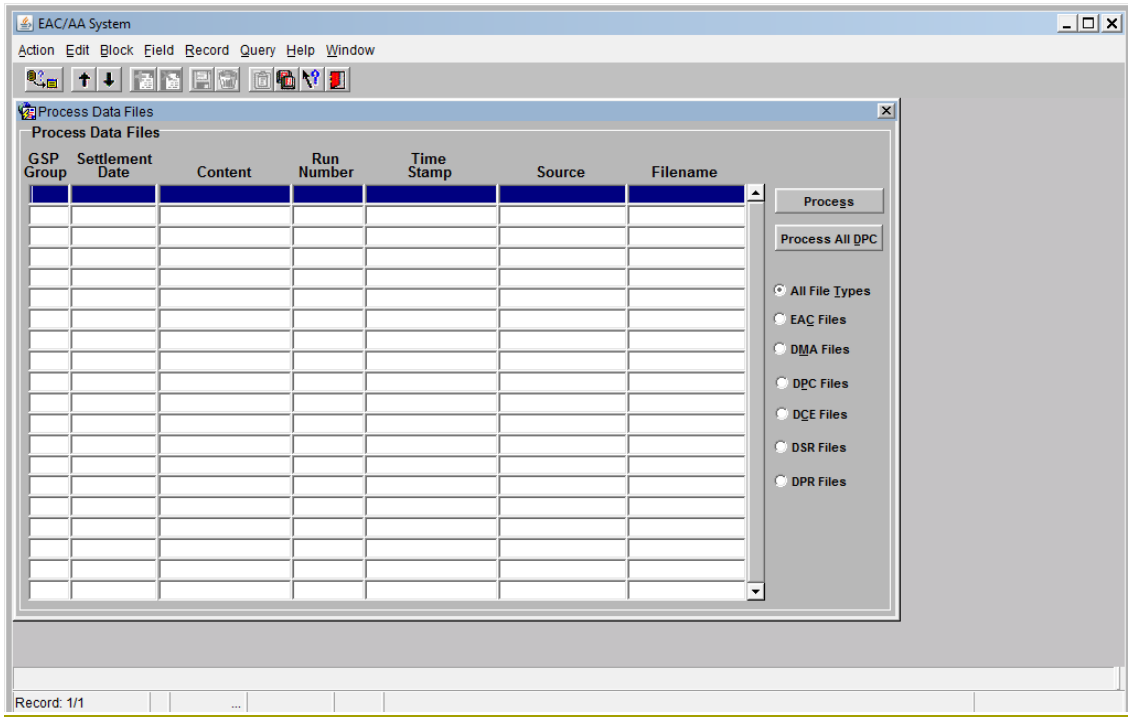
~~5.5.10~~5.5.13 FORM EPD_PDF Specification (Manual Mode Only)

This form is only part of EAC/AA if the system was installed in Manual Mode.

~~5.5.10.1~~5.5.13.1 Screen Layout

The form EPD_PDF is activated from the Process Data File (EPD) subsystem menu item.





5.5.10.25.5.13.2 Screen Behaviour

The form EPD_PDF allows the EAC/AA users to select a file or all the Daily Profile Coefficient files, and initiate the appropriate background process to process the selected file(s).

Form Action On	Form Response
Selection of Form	Display the three blocks of the form, place the cursor on the top row of the first column and put the form in query mode.
Entering a Query	Allow user to enter the field(s) or part of the field(s) followed by % for query action to take place.
Executing a Query	Execute the query in order to return all the values or if any fields have been specified to return the values matching the selection depending on the type of file selected.
Selecting a file type	Filter the result of executing a query, limiting it to type of files selected.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	Move the cursor to the next column, if at the last column move cursor to next row.
Clicking On Scroll Bar	Highlight the record corresponding to the position of the scroll bar.
Clicking on Process Button	Initiate the background process for the highlighted row.
Clicking on Process All DPC Button	Initiate background process for all the Daily Profile Coefficient files.
Clicking on Function Keys Button	Display mapping of logical functions to physical keys.
Clicking on Help Key Button	Invokes EAC/AA System help.
Clicking on Exit Key Button	Exit form.

~~5.5.10.3~~5.5.13.3Description

This form allows EAC/AA users to select file(s) and initiate a background process on the Server to process the selected file(s).

It contains three blocks:

- Control Block, this block contains the buttons responsible for initiating the background processes to load the selected file(s) and filtering of the files to be displayed.
- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- File Selection Block, the block is associated with the table edb_data_files, allowing queries to be carried out on the stored rows in that table.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor
- EAC/AA System Operator

5.5.10.45.5.13.4Form Structure

Field Name	Description
Block: CONTROL	Block contains the two buttons to initiate the background process on the Server to process the selected file(s), it also contains a Radio Button Group to allow filtering of the selected files.
Button PROCESS	Button to trigger the background process on the Server for the selected file. The triggering of the background process is achieved by calling a procedure to load the procedure and parameter details into the edb_jobs table. The data passed to the Scheduler (ESC) has been specified in section 7.
Button PROCESS_ALL_DPC	Button to trigger the background process on the Server to re-load all the Daily Profile Coefficient file for two years. The triggering of the background process is achieved by calling a procedure to load the procedure and parameter details into the edb_jobs table. The data passed to the Scheduler (ESC) has been specified in section .
Radio Button Group FILE_TYPE	Group contains four options allowing filtering of file selection.
Radio Button ALL_FILES	No join on edb_data_files.file_content_code
Radio Button EAC_FILES	Join edb_data_files.file_content_code = as specified in edb_ref_values.
Radio Button DMA_FILES	Join edb_data_files.file_content_code = as specified in edb_ref_values.
Radio Button DPC_FILES	Join edb_data_files.file_content_code as specified in edb_ref_values.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button ENTER_QUERY	Puts the form in “Query Mode” and allows fields to be entered in the fields of “SELECT_FILE” Block.
Button EXECUTE_QUERY	Executes a query based on the field(s) entered.
Button NEXT_RECORD	Moves the cursor to the next row of the “SELECT_FILE” Block, highlighting the row.
Button PREVIOUS_RECORD	Moves the cursor to the previous row of the “SELECT_FILE’’ Block, highlighting the row.
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical

	keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: SELECT_FILE	Block contains fields associated with the table edb_data_files.
Field GSP_GROUP	edb_data_files.gsp_group_id
Field SETTLEMENT_DATE	edb_data_files.settlement_date
Field FILE_CONTENT	edb_ref_values.description where domain_code = 'FCCO' and edb_ref_values.value_from = edb_data_files.file_content_code
Field RUN_NUMBER	edb_data_files.run_num
Field TIME_STAMP	edb_data_files.file_creation_date
Field SOURCE	edb_ref_values.description where domain_code = 'MARO' and edb_ref_values.value_from = edb_data_files.market_role
Field FILE_NAME	edb_data_files.file_name

~~5.5.10.5~~5.5.13.5Action on Form Load

Display the three blocks of the form, place the cursor on the top row of the first column, puts the form in query mode and executes the default query.

~~5.5.10.6~~5.5.13.6Action on Query

Execute a query based on the field(s) entered. complete/partial of the "SELECT_FILE" Block on edb_data_files where edb_data_files.file_status is NULL and the filtering specified by the Radio Button Group FILE_TYPE.

~~5.5.10.7~~5.5.13.7Action on Update

Not Allowed.

~~5.5.10.8~~5.5.13.8Action on Insert

Not Allowed.

~~5.5.10.9~~5.5.13.9Action on Delete

Not Allowed.

~~5.5.10.10~~5.5.13.10Action on Button ENTER_QUERY

Put the form in "Query Mode" and allows fields to be entered in the fields of "SELECT_FILE" Block.

~~5.5.10.11~~5.5.13.11Action on Button EXECUTE_QUERY

Execute a query based on the field(s) entered complete/partial of the "SELECT_FILE" Block on edb_data_files where edb_data_files.file_status is NULL and the filtering specified by the Radio Button Group FILE_TYPE.

~~5.5.10.12~~5.5.13.12Action on Button NEXT_RECORD

Move the cursor to the next row of the "SELECT_FILE" Block, highlighting the row.

~~5.5.10.13~~5.5.13.13Action on Button PREVIOUS_RECORD

Move the cursor to the previous row of the "SELECT_FILE" Block, highlighting the row

~~5.5.10.14~~5.5.13.14Action on Button PROCESS

Button to trigger the background process on the Server for the selected file. The triggering of the background process is achieved inserting into edb_jobs. For Daily Profile Coefficient files, a check will be made to ascertain that the later version of data is not available for the same Settlement Date. If later versions of the same data are available then a standard alert box will be displayed and user will be asked to select another file: For the selected Daily Profile Coefficient file of edb_data_files.gsp_group_id is Null there are no files with higher number of edb_data_files.run_num, For the selected Daily Profile Coefficient file of edb_data_files.gsp_group_id is not Null there are no files with higher number of edb_data_files.run_num and the same edb_data_files.gsp_group_id. Additionally the settlement date of selected Daily Profile Coefficient is checked to ensure that there is already data present for the previous settlement date or there is data for the same settlement date but for a lower edb_data_files.run_num (implying a revised file) or that there is no Daily Profile Coefficients stored in the system at all.

The edb_data_files.file_status for the selected file is set to 'R'.

~~5.5.10.15~~5.5.13.15Action on Button PROCESS_ALL_DPC

Button to trigger the background process on the Server to reload all the Daily Profile Coefficient file for two years. The triggering of the background process is achieved by populating the details in edb_jobs table.

The edb_data_files.file_status for all the Daily Profile Coefficient files is set to 'M'.

~~5.5.10.16~~5.5.13.16Action on Radio Button Group FILE_TYPE

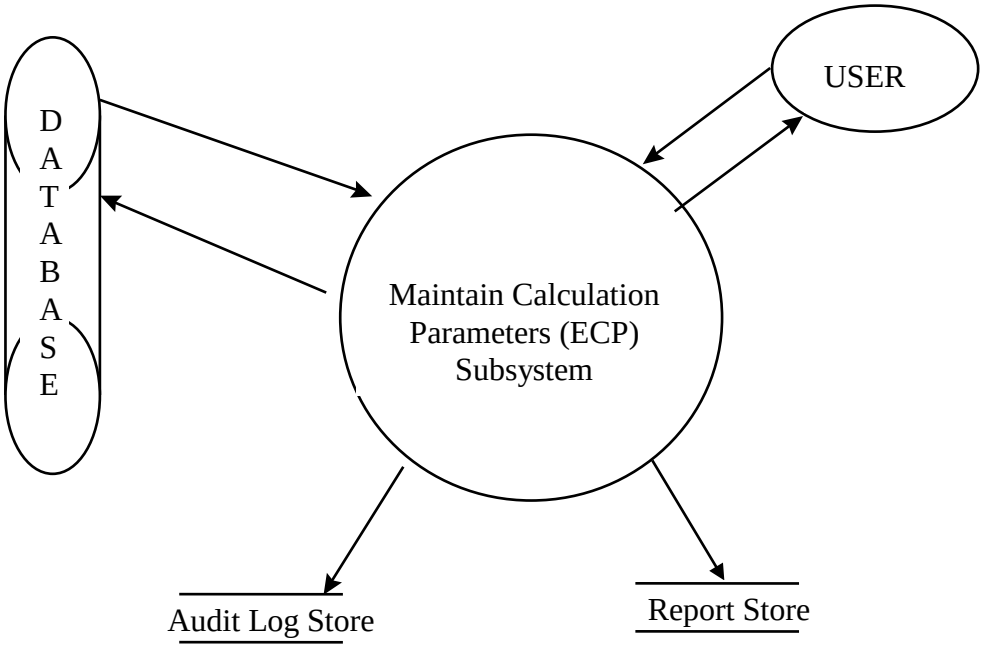
Group contains four options allowing filtering of file selection when performing a query.

6 Subsystem ECP Specifications

6.1 Introduction

This subsystem provides the facility to maintain the calculation parameters used in calculations of EACs, AAs, Deemed Meter Advances and Deemed Meter Readings, additionally it provides facilities for ad-hoc reports.

6.2 Subsystem Context



6.3 User Interface

The interaction between the EAC/AA user and the Maintain Calculation Parameters (ECP) subsystem is achieved via the forms ECP_SSP, ECP_RPC, ECP_IIF, ECP_SSC and ECP_LSD.

The form ECP_SSP allows the user to browse and/or maintain the values of Smoothing Parameters. Depending on the user role invoking the form, the form will either only allow browsing of the values of Smoothing Parameters or it allows the user to alter the values of Smoothing Parameters.

The form ECP_IIF allows the user to identify the Daily Profile Coefficient files submitted to EAC/AA system by the ISRA system and used in calculations of EAC/AA and Deemed Meter Advance.

The form ECP_SSC allows the user to amend, delete existing values of Standard Settlement Configurations or enter new ones.

The form ECP_RPC allows the user to initiate the report of the values of the Daily Profile Coefficients and other associated details for a range of Settlement Dates: report procedure ECP_REP. Form ECP_RPC allows the user to specify the parameters required to produce the report and then to initiate the report.

The form ECP_LSD allows the user to establish settlement date for which Daily Profile Coefficients have been loaded.

The report ECP_REP is initiated by the form ECP_RPC, the parameters necessary for the execution of the report are passed into the report program by the form. The report is then displayed online and maybe printed if required.

The form ECP_GPD allows the user to browse the values of GSP Group Profile Class Default EACs.

6.3.1 Database Interface

The interaction between the various forms and report in this subsystem with the database are handled by Oracle SQL*Net. The data passed to the forms by the user will be defined in the form specification section.

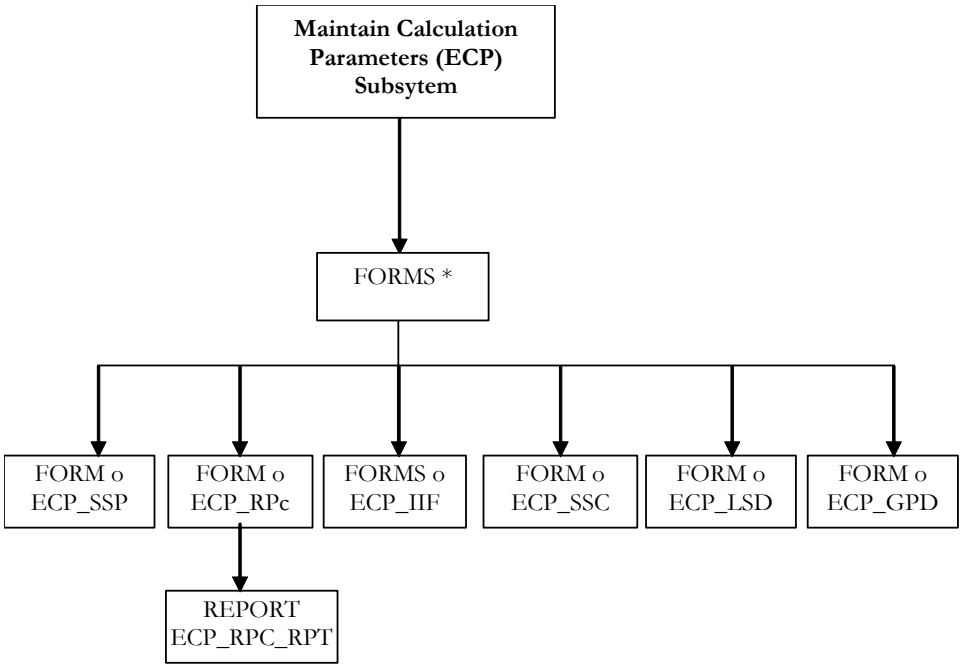
6.3.2 Audit Log Interface

The user amendments to the Smoothing Parameters using the form ECP_SSP will be logged for audit purposes. This will be achieved by the form, which will call a database procedure to send the alterations to the data to an audit log file. The details of the user and the date and time of the amendment are also written to the audit log file. The log file will be stored in a directory named E_archive (retrieved from edb_ref_values). The physical implementation of the directory will be determined based on the target machine.

The amendment are logged as follows:

- Insert (<EAC/AA UserName>|<Date/Time>|I|<Smoothing Parameter>|< Settlement Date>)
- Update (<EAC/AA UserName>|<Date/Time>|A|<Old Smoothing Parameter>|<Old Settlement Date>)
- Delete (<EAC/AA UserName>|<Date/Time>|D|<Old Smoothing Parameter>|<Old Settlement Date>)

6.4 Subsystem Processing



This subsystem provides the forms necessary to maintain the parameters used in calculations of EACs, AAs, Deemed Meter Advances and Deemed Meter Readings, and additionally it provides the facility to report on the Daily Profile Coefficients.

As shown on the subsystem decomposition diagram above, the subsystem comprises of five forms and one report. The forms will be available depending on the user role of the EAC/AA user from the subsystem menu. The details of user role access to the forms is provided in the Screen Behaviour section of each of the forms.

The form ECP_SSP allows the user to enter new Smoothing Parameters onto the system, it also allows amendments to existing Smoothing Parameters. All Smoothing Parameter amendments are audited by logging the old values in a flat file on the Server.

The form ECP_RPC allows ad-hoc reports to be produced on stored Daily Profile Coefficients. This is achieved by passing the parameters specified by the user to the report. The report will be displayed online and user will be allowed to print the report if required.

The form ECP_GPD allows the user to browse the GSP Group Profile Class Default EAC in the system

From	To	Data
FORM ECP_RPC	REPORT ECP_REP	Settlement Date range for which the report is required will need to be specified, the remaining parameters may be left unspecified: From Settlement Date - To Settlement Date

		GSP Group Id OR 'NULL' Profile Class Id OR 'NULL' Standard Settlement Configuration Id OR 'NULL' Time Pattern Id OR 'NULL'

6.5 Data Usage

The System Data section, provides a cross reference for the components of the subsystem and their mode of access.

The Local Data section contains the details of the audit data maintained by this subsystem.

6.5.1 System Data

The details of the tables accessed by this subsystem are as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
FORM ECP_SSP	edb_smoothing_parameters	X	X	X	X
	edb_data_files				X
FORM ECP_IIF	edb_data_files				X
FORM ECP_SSC	edb_std_settlement_configs	X	X	X	X
FORM ECP_LSD	edb_data_files				X
REPORT ECP_REP	edb_daily_profile_coefficients				X
ECP_GPD	edb_gspg_pc_def_eac				X

6.5.2 Local Data

The form ECP_SSP logs the changes to the values of Smoothing Parameters as described in Audit Log Interface section.

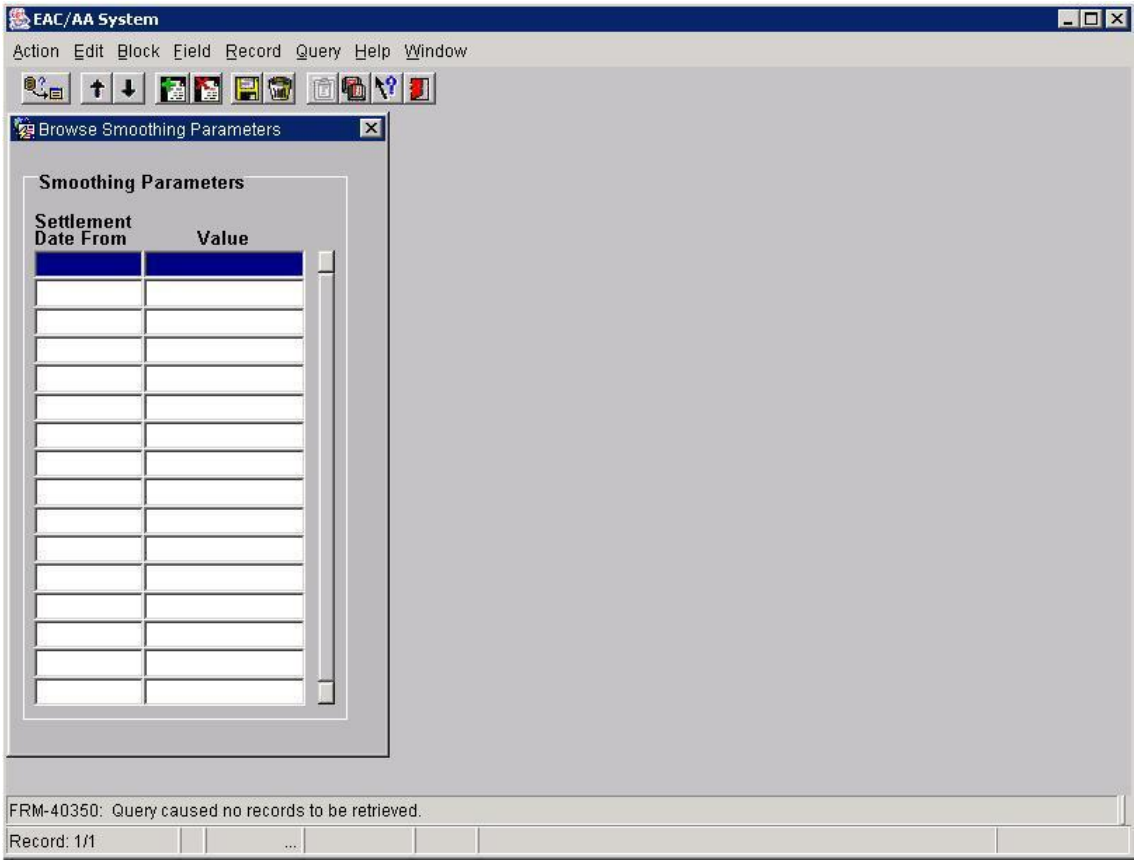
6.6 Procedure Details

The details of the forms and report contained within this subsystem are given in the following sections.

6.6.1 FORM ECP_SSP

6.6.1.1 Screen Layout

The form ECP_SSP is activated from the Maintain Calculation Parameters (ECP) subsystem menu item.



6.6.1.2 Screen Behaviour

The form ECP_SSP allows the EAC/AA users to maintain the values of Smoothing Parameters used in calculations of EAC/AA values.

The screen behaviour will differ depending the user role the EAC/AA user belongs to. The screen behaviour for the two user roles accessing the form are as follows:

- EAC/AA System Operator. The form will operate in browse mode. Queries could be carried out on existing data. However, no amendment to the existing data or entry of new Smoothing Parameters will be allowed.
- EAC/AA Operations Supervisor. The form will allow queries to be carried out on exiting data. The user is then allowed to amend or delete the data. The user is also allowed to enter new Smoothing Parameter values.

The table below outlines all the possible actions associated with the form ECP_SSP:

Form Action On	**Form Response**
Selection of Form	Display the two blocks of the form, place the cursor on the top row of the first column and puts the form in query mode.
Entering a Query	Allow user to enter the field(s) or part of the field(s) followed by % for query action to take place.

Executing a Query	Execute the query in order to return all the values or if any fields have been specified to return the values matching the selection.
Cancelling Query	Cancels the query mode and puts the form in insert mode.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	Move the cursor to the next column, if at the last column move cursor to next row.
Clicking On Scroll Bar	Highlight the record corresponding to the position of the scroll bar.
Insert Row	Allow a new row for Smoothing Parameter to be entered.
Delete Row	Deletes the highlighted row.
Clear Record	Clears the record from the form without deleting it on the database.
Function Key	Display mapping of logical functions to physical keys.
Help Key	Invokes EAC/AA System help.
Exit	Allows the changes to Smoothing Parameters values to be rolled back or committed to the database.
Commit	Commit the changes to Smoothing Parameter values to the database.

6.6.1.3 Description

This form allow EAC/AA users depending on their user role to either browse or browse, amend and insert new values of Smoothing Parameters.

It contains two blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Smoothing Parameter Block, the block is associated with the table edb_smoothing_parameters, allowing inserts, updates or queries to be carried out on the stored rows in that table.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor
- EAC/AA System Operator

Form Structure

Field Name	**Description**
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button ENTER_QUERY	Puts the for in “Query Mode” and allows fields to be entered in the fields of “SMOOTHING_PARAMETER” Block.

Button EXECUTE_QUERY	Executes a query based on the field(s) entered. The rows are ordered by descending Settlement Date.
Button CANCEL_QUERY	Cancels the query mode and allows a row to be inserted.
Button NEXT_RECORD	Moves the cursor to the next row of the "SMOOTHING_PARAMETER" Block, highlighting the row.
Button PREVIOUS_RECORD	Moves the cursor to the previous row of the "SMOOTHING_PARAMETER" Block, highlighting the row.
Button DELETE_ROW	Allows a row to be deleted from the "SMOOTHING_PARAMETER" Block. Validation is checked as follows: Deletions will be allowed only if an entry in edb_data_files indicates that Daily Profile Coefficients have not been loaded for a Settlement Date on or after the edb_smoothing_parameters.settlement_from_date. Or if the Daily Profile Coefficients have been archived for the effective to date (indicated by the subsequent edb_smoothing_parameters.settlement_from_date.
Button CLEAR_RECORD	Allows a row to be cleared from the form without being deleted on the database.
Button INSERT_ROW	Allows a new row to be added within the "SMOOTHING_PARAMETER" block.
Button COMMIT_CHANGE	Commits the changes to Smoothing Parameters in the "SMOOTHING_PARAMETER" block to the database. Validation is checked as follows: Updates or inserts disallowed if an entry exists in edb_data_files indicating that Daily Profile Coefficients have been loaded for a Settlement Date on or after the edb_smoothing_parameters.settlement_from_date
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: SMOOTHING_PARAMETER	Block contains two columns and is associated with the table edb_smoothing_parameters.
Field SETTLEMENT_DATE	edb_smoothing_parameters.settlement_from_date. The date of the calculations to be

	entered by the user in the format 'DD/MM/YYYY '. Only one entry is allowed for a particular date.
Field SMOOTHING_PARAMETER	edb_smoothing_parameters.smoothing_param. The smoothing parameter has a maximum of 6 digits, including 3 decimal places.

6.6.1.4 Action on Form Load

Display the two blocks of the form, place the cursor on the top row of the first column and puts the form in query mode.

6.6.1.5 Action on Query

Execute a query based on the field(s) complete/partial of the "SMOOTHING_PARAMETER" Block on table edb_smoothing_parameters.

6.6.1.6 Action on Update

Update the field of edb_smoothing_parameters amended by the user upon commit.

6.6.1.7 Action on Insert

Insert the row entered by the user in the edb_smoothing_parameters table upon commit.

6.6.1.8 Action on Delete

Delete the row removed by the user from edb_smoothing_parameters table upon commit.

6.6.1.9 Action on Button ENTER_QUERY

Put the form in "Query Mode" and allow fields to be entered in the fields of "SMOOTHING_PARAMETER" Block.

6.6.1.10 Action on Button EXECUTE_QUERY

Execute a query based on the field(s) entered complete/partial of the "SMOOTHING_PARAMETER" Block on edb_smoothing_parameters.

6.6.1.11 Action on Button NEXT_RECORD

Move the cursor to the next row of the "SMOOTHING_PARAMETER" Block, highlighting the row.

6.6.1.12 Action on Button PREVIOUS_RECORD

Move the cursor to the previous row of the " SMOOTHING_PARAMETER" Block, highlighting the row.

6.6.1.13 Action on Button CANCEL_QUERY

Cancel the query mode and allow insertion of new rows.

6.6.1.14 Action on Button INSERT_ROW

Allow a new row to be added within the "SMOOTHING_PARAMETER" block.

6.6.1.15 Action on Button DELETE_ROW

Allow a row to be deleted from the "SMOOTHING_PARAMETER" Block.

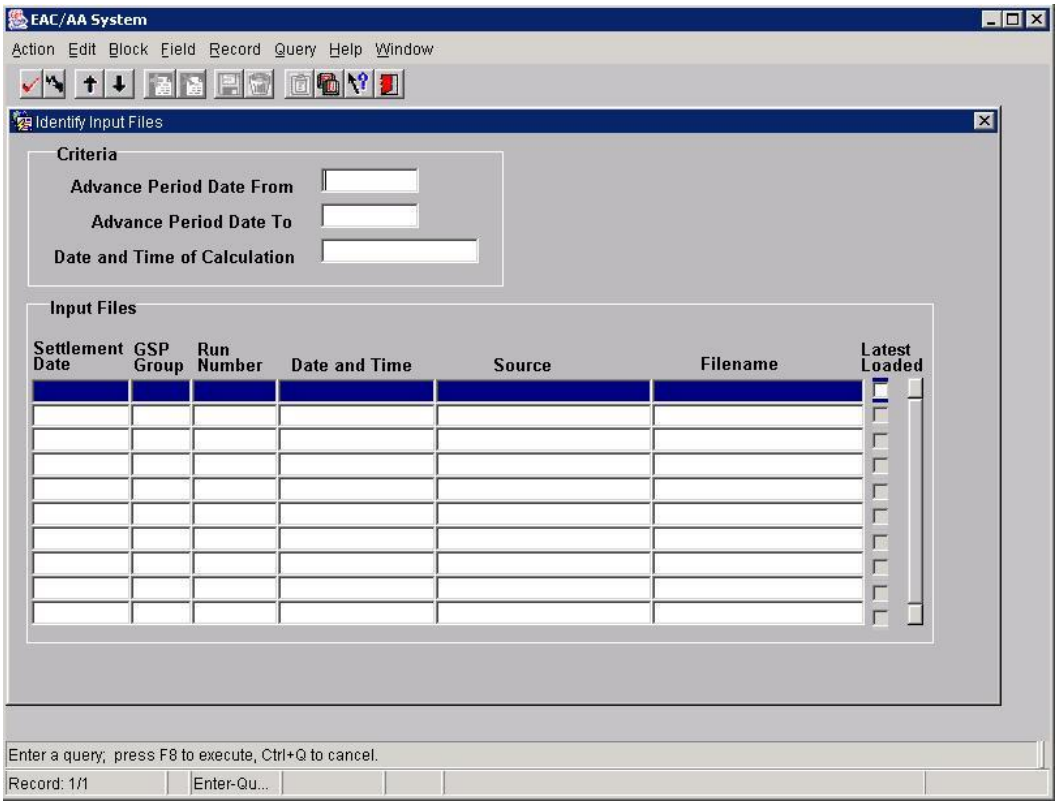
6.6.1.16 Action on Button COMMIT_CHANGE

Commit the changes to Smoothing Parameters in the "SMOOTHING_PARAMETER" block to the database.

6.6.2 FORM ECP_IIF

6.6.2.1 Screen Layout

The form ECP_IIF is activated from the Maintain Calculation Parameters (ECP) subsystem menu item.



6.6.2.2 Screen Behaviour

The form ECP_IIF allows the EAC/AA user to identify Daily Profile Coefficient files used in calculations of EAC/AA and Deemed Meter Advances. Once the Effective Date From, Effective Date To of Meter Advance Period and the date and the time of the calculation are specified,

the user is allowed to execute a query to bring back the details of the files used in the EAC/AA and Deemed Meter Advance calculations.

The table below outlines the possible actions associated with the form ECP_IIF:

Form Action On	Form Response
Selection of Form	Display the three blocks of the form, and allow the user to enter the date details into the selection criteria.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	Move the cursor to the next field in the selection criteria. If at the last field of the selection criteria move to the first field.
Moving Scroll Bar	Move the cursor to the file details corresponding to the position of the cursor.
Executing a Query	Ensure that all the date and time details in the selection criteria have been entered and populate the details of the files used in the calculation based on the data entered.
Function Key	Display mapping of logical functions to physical keys.
Help Key	Invokes EAC/AA System help.
Exit	Allow the user to exit the form.

6.6.2.3 Description

The form ECP_IIF allows user to identify Daily Profile Coefficient files used in calculations of EAC/AA and Deemed Meter Advances.

Depending on the user role of the EAC/AA user, this form could be selected to display the latest settlement date for which Daily Profile Coefficients have been loaded.

It contains three blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Selection Criteria Block, the block allows the user to enter the selection criteria necessary for identifying the files used in the EAC/AA and Deemed Meter Advance calculations.
- File List block, a display only block, to show the details of the files used in calculations based on the values specified in the Selection Criteria block.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor
- EAC/AA System Operator

6.6.2.4 Form Structure

The form details are as follows:

Field Name	Description
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button ENTER_QUERY	Puts the form in "Query Mode" and allows fields to be entered in the fields of "SELECTION_CRITERIA" block.
Button EXECUTE_QUERY	Executes a query based on the values entered in the "SELECTION_CRITERIA" block and displaying the results in the "FILE_LIST" block.
Button NEXT_RECORD	Moves the cursor to the next row of the "FILE_LIST" Block, highlighting the row.
Button PREVIOUS_RECORD	Moves the cursor to the previous row of the "FILE_LIST'' Block, highlighting the row.
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: SELECTION_CRITERIA	Block containing three fields specifying the selection criteria for the list files to be displayed in the "FILE_LIST" block.
Field ADVANCE_DATE_FROM	A start date field to be specified by the user, in the format 'DD/MM/YYYY'. This date should be earlier than ADVANCE_DATE_TO.
Field ADVANCE_DATE_TO	An end date to be specified by the user, in the format 'DD/MM/YYYY'. This date should be later than ADVANCE_DATE_FROM.
Field CALC_DATE_TIME	The Date and time of the calculations to be entered by the user in the format 'DD/MM/YYYY HH:MI'.
Block: FILE_LIST	Block displaying the files names selected from the database as a result of the query base on the fields entered in the "SELECTION_CRITERIA" block. The block will be based on the table edb_data_files. The user will not be allowed to entered any details in the fields in this block.
Field SETTLEMENT_DATE	edb_data_files.settlement_date
Field GSP_GROUP_ID	edb_data_files.gsp_group_id
Field RUN_NUMBER	edb_data_files.run_num
Field DATE_TIME	edb_data_files.file_creation_date

Field SOURCE	edb_data_files.participant_id
Field FILE_NAME	edb_data_files.file_name
CheckBox LATEST_LOADED	This CheckBox will be ticked if the Daily Profile Coefficients file is the latest loaded in the EAC/AA system.

6.6.2.5 Action on Form Load

Display the three blocks of the form, place the cursor on the "ADVANCE_DATE_FROM" of the "SELECTION_CRITERIA" block.

6.6.2.6 Action on Query

Check all the three fields of the block "SELECTION_CRITERIA" have been populated. If one of the fields has not been specified, then display a standard alert box, and put the cursor on the first non-filled field in the block.

Execute query on the "FILE_LIST" block, return all the rows of edb_data_files where the edb_data_files.file_content_code is of Daily Profile coefficient type, the edb_data_files.file_processed_date is prior to the field "SELECTION_CRITERIA.CALC_DATE_TIME", the edb_data_files.file_status is 'C'. All the rows, for a particular edb_data_files.settlement_date, will be returned up to and including the row with an edb_data_files.file_content_code of '1'. This means that only the Daily Profile Coefficients that were in effect for a set Settlement Date, on a processing date will be returned.

For each row the CheckBox LATEST_LOADED will be checked if there are no files for the same edb_data_files.settlement_date of edb_data_files.file_processed_date after the date and time "SELECTION_CRITERIA.CALC_DATE_TIME" specified by the user.

6.6.2.7 Action on Update

Not Allowed.

6.6.2.8 Action on Insert

Not Allowed.

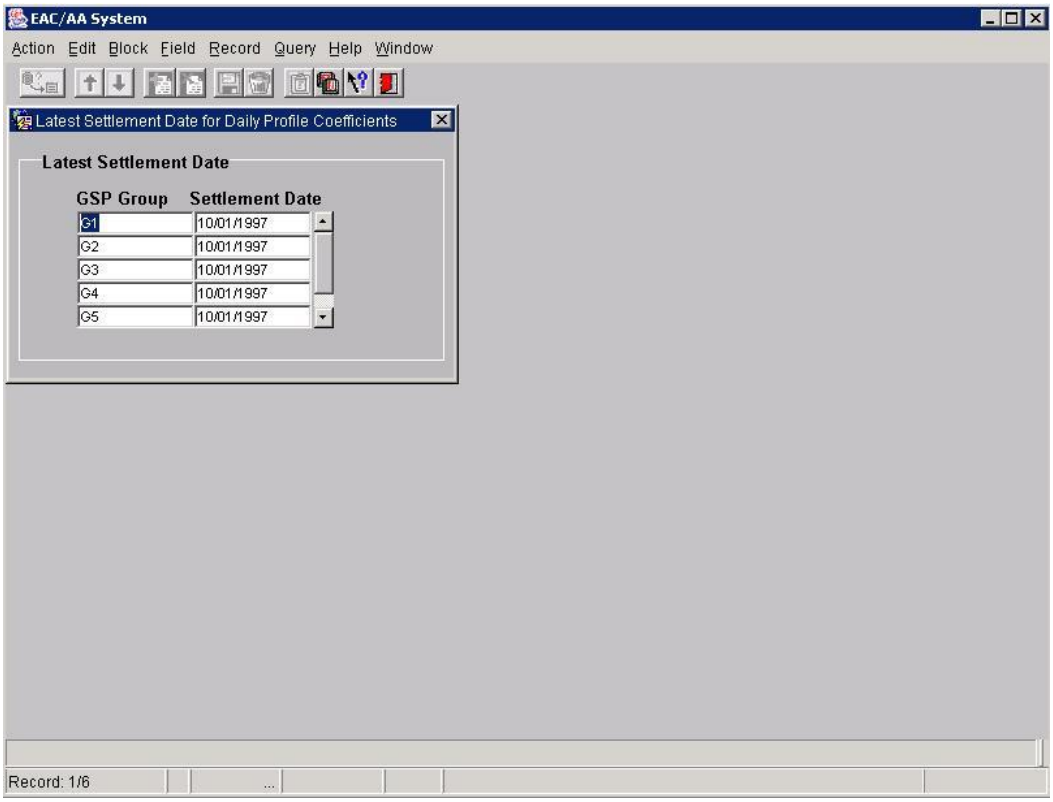
6.6.2.9 Action on Delete

Not Allowed.

6.6.3 FORM ECP_LSD

6.6.3.1 Screen Layout

The form ECP_LSD is activated from the Maintain Calculation Parameters (ECP) subsystem menu item.



6.6.3.2 Screen Behaviour

The form ECP_LSD is a non-interactive form, its sole purpose is to display the GSP Groups and their latest settlement dates for which Daily Profile Coefficients have been loaded in EAC/AA system.

The latest settlement dates for which Daily Profile Coefficients have been loaded for GSP Groups in the EAC/AA system is displayed when the form is selected from the Maintain Calculation Parameters (ECP) subsystem menu.

The table below outlines the possible actions associated with the form ECP_LSD:

Form Action On	**Form Response**
Selection of Form	Displays the latest settlement Date for which Daily Profile Coefficients have been loaded for GSP Groups in EAC/AA system.
Function Key	Display mapping of logical functions to physical keys.
Help Key	Invokes EAC/AA System help.
Exit	Allows the user to exit the form.

6.6.3.3 Description

Depending on the user role of the EAC/AA user, this form could be selected to display the latest settlement date for which Daily Profile Coefficients have been loaded.

It contains only one block:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Settlement Date block, based on the table edb_data_files, it contains only one field, displaying the latest settlement dates for which Daily Profile Coefficients have been loaded for GSP Groups in the system. The date is displayed upon invocation of the form.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor
- EAC/AA System Operator

6.6.3.4 Form Structure

Field Name	Description
Block: SETTLEMENT_DATE	Block displaying the latest settlement dates for which Daily Profile Coefficients have been loaded for GSP Groups in the system.
Field GSP_GROUP	edb_data_files.gsp_group_id where edb_data_files.file_content_code like 'DPD%' and (edb_data_files.file_status = 'C' or edb_data_files.file_status = 'A') ordered in edb_data_files.settlement_date descending.
Field SETTLEMENT_DATE	edb_data_files.settlement_date where edb_data_files.file_content_code like 'DPD%' and (edb_data_files.file_status = 'C' or edb_data_files.file_status = 'A') ordered in edb_data_files.settlement_date descending.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.

6.6.3.5 Action on Form Load

Display the SETTLEMENT_DATE block, query the edb_data_files tables for the GSP Groups for which Daily Profile Coefficients have been loaded in the EAC/AA system, and the latest settlement_dates of these coefficients.

6.6.3.6 Action on Query

Not Allowed.

6.6.3.7 Action on Update

Not Allowed.

6.6.3.8 Action on Insert

Not Allowed.

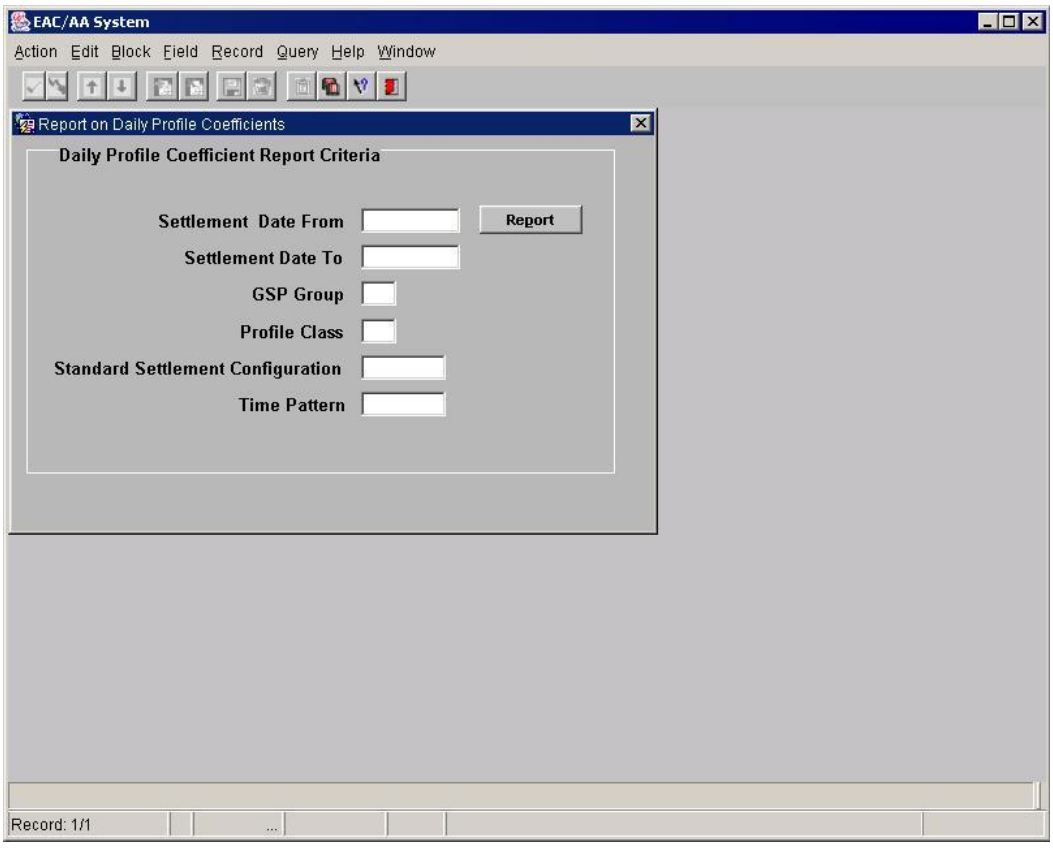
6.6.3.9 Action on Delete

Not Allowed.

6.6.4 FORM ECP_RPC

6.6.4.1 Screen Layout

The form ECP_RPC is activated from the Maintain Calculation Parameters (ECP) subsystem menu item.



6.6.4.2 Screen Behaviour

The form ECP_RPC allows the EAC/AA users to produce ad-hoc reports on the details of Daily Profile Coefficients stored in EAC/AA system.

The form allows the user to enter a set of parameters, which will be used to initiate the report procedure ECP_REP. With the exception of the Settlement Date range, the remaining parameters are optional i.e. if the user

leaves some parameters unspecified, a report will be produced for all the values of the unspecified parameters within the Settlement Date range.

The form does not offer any lookup facility as the reference information for the parameters in the form are not maintained by the EAC/AA system.

The basic field format validation is carried out by this form, in addition specific validation stated in the Form Structure section.

The table below outlines all the possible actions associated with the form ECP_RPC:

Form Action On	Form Response
Selection of Form	Display the three blocks of the form, place the cursor on the SETTLEMENT_DATE_FROM field.
Tabbing	Move the cursor to the next field, if at the last field move cursor to first field.
Clicking On Report	Check that the Settlement Date range has been entered, initiate the report procedure ECP_REP using the parameters specified.
Clicking on Function Keys Button	Display mapping of logical functions to physical keys.
Clicking on Help Key Button	Invokes EAC/AA System help.
Exit	Exit the form.

6.6.4.3 Description

This form allow EAC/AA users to initiate ad-hoc reports on Daily Profile Coefficients. The report is initiated using the parameters specified using this form.

It contains three blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Control Block, this block contains the button “Report” to initiate the report based on the values specified.
- Report Parameters Block, this block contains the fields, based on which the report will be produced.

The EAC/AA users belonging to the following user role will be able to access this form:

- EAC/AA System Auditor
- EAC/AA Operations Supervisor

6.6.4.4 Form Structure

Field Name	Description
Block: CONTROL	Block contains one field, which triggers the initiation of the report based on values specified in "REPORT_PARAM" block.
Button Report	Button to trigger the background process on the Server to produce the report. The triggering of the background process is achieved by calling a procedure to load the procedure and parameter details into the edb_jobs table. The data passed to the Scheduler (ESC) has been specified in section 6.4.
Block: REPORT_PARAM	Block contains six fields to specify the required parameters for the Daily Profile Coefficient Report.
Field SETTLEMENT_DATE_FROM	The lower range of Settlement Date for which the report is required, in the format 'DD/MM/YYYY'. This date should be earlier than SETTLEMENT_DATE_TO.
Field SETTLEMENT_DATE_TO	The upper range of Settlement Date for which the report is required, in the format 'DD/MM/YYYY'. This date should be later than SETTLEMENT_DATE_FROM.
Field GSP_GROUP_ID	The GSP Group Id within the Settlement Date range for which the report is required.
Field PROFILE_CLASS_ID	The Profile Class Id within the Settlement Date range for which the report is required.
Field STD_SETT_CONFIG_ID	The Standard Settlement Configuration Id within the Settlement Date range for which the report is required.
Field TIME_PATTERN_ID	The Time Pattern Regime Id within the Settlement Date range for which the report is required.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.

6.6.4.5 Action on Form Load

Display the three blocks of the form, place the cursor on the SETTLEMENT_DATE_FROM field.

6.6.4.6 Action on Query

Not Allowed.

6.6.4.7 Action on Update

Not Allowed.

6.6.4.8 Action on Insert

Not Allowed.

6.6.4.9 Action on Delete

Not Allowed.

6.6.4.10 Action on Button Report

Schedule the report process by calling a procedure to load the details into the edb_jobs table. All the report parameters entered by the user are passed as parameters.

6.6.5 PROCEDURE ECP_REP

This procedure produces the Report on Daily Profile Coefficients, based on the report parameters entered by the user on the Report on Daily Profile Coefficients (ECP_RPC) form.

The procedure is initiated by the Scheduler (ESC) subsystem. The report criteria which the user chose to enter are passed into the procedure as parameters.

Build an SQL statement from the input parameters to use to select the relevant records from the edb_daily_profile_coefficients table.

Note that the layout of the machine-readable exception report is given in section 3.2.4; this explains the contents of the records defined by the three-letter record codes referred to in the following steps:

Write headers to the machine-readable report (including the username from edb_jobs)

Write a USR record to the machine-readable report

For each report parameter entered by the user

    Write a SEL record to the machine-readable report

Select the edb_daily_profile_coefficients records

For each edb_daily_profile_coefficients record retrieved

    Write the DPC record to the machine-readable report

Write footer to the machine-readable report

Create records in edb_data_files and edb_report_files for the machine-readable report.

The layout of the human-readable report generated from it by the ERP Report Formatter when the user requests to view the report is as follows:

Report on Daily Profile Coefficients

Report On DPC An Electricity Company 25/02/1998 14:27

User: OPSSUPER

Report Criterion	Value
Settlement Date From	01/01/1997
Settlement Date To	02/01/1997
GSP Group	G1
Profile Class	1
Standard Settlement Configuration	(Not Specified)
Time Pattern Regime	(Not Specified)

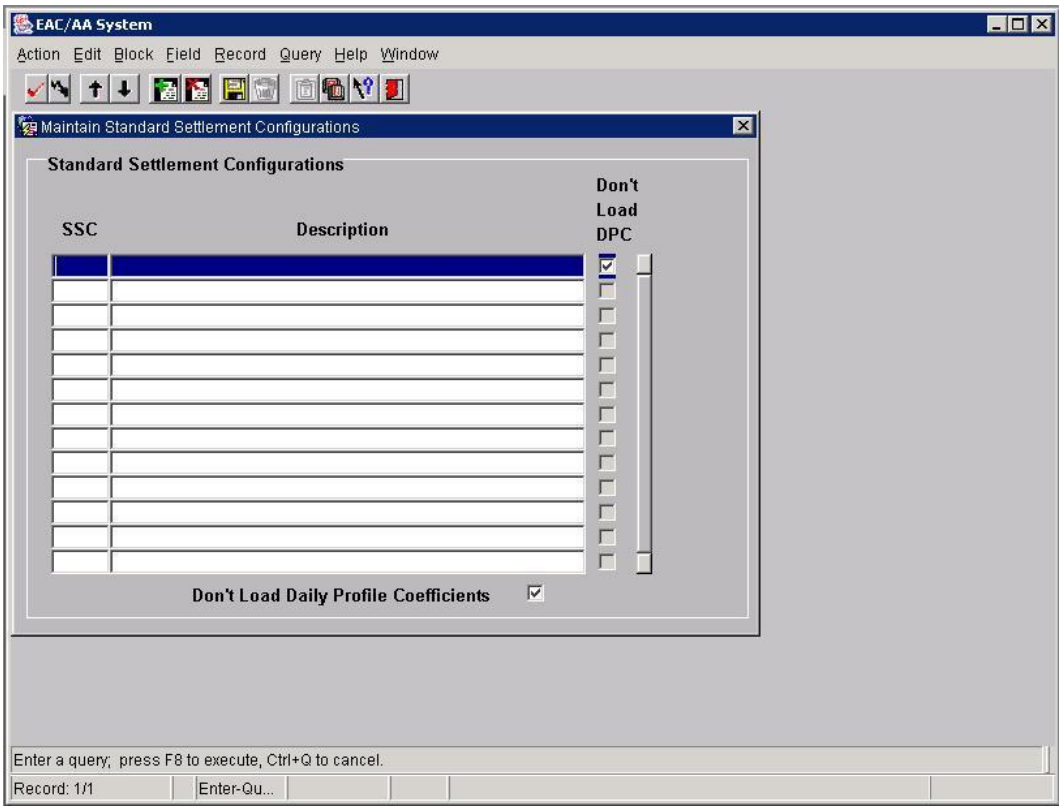
Settlement Date	GSP Group	Profile Class	Standard Settlement Configuration	Time Pattern Regime	Daily Profile Coefficient Values
01/01/1997	G1	1	SSC1	TPR01	0.0730788684758
01/01/1997	G1	1	SSC1	TPR02	0.0915178545137
01/01/1997	G1	1	SSC1	TPR03	-0.0347614797508
01/01/1997	G1	1	SSC1	TPR04	0.0836437016075
01/01/1997	G1	1	SSC2	TPR04	-0.0590207062692
01/01/1997	G1	1	SSC3	TPR01	-0.0478120953295
01/01/1997	G1	1	SSC3	TPR02	0.0760006268729
01/01/1997	G1	1	SSC3	TPR03	-0.0377271283827
01/01/1997	G1	1	SSC3	TPR04	-0.0435407800509
01/01/1997	G1	1	SSC4	TPR01	-0.0428339051681
01/01/1997	G1	1	SSC4	TPR02	-0.0598159008832
01/01/1997	G1	1	SSC4	TPR03	-0.0344333725371
01/01/1997	G1	1	SSC4	TPR04	0.0934281654317
02/01/1997	G1	1	SSC1	TPR01	0.0440048758565
02/01/1997	G1	1	SSC1	TPR02	0.0675107309799
02/01/1997	G1	1	SSC1	TPR03	0.0588216333700
02/01/1997	G1	1	SSC1	TPR04	0.0290588873580
02/01/1997	G1	1	SSC2	TPR01	0.0594950544907
02/01/1997	G1	1	SSC2	TPR02	0.0721942441236
02/01/1997	G1	1	SSC2	TPR03	0.0339154392415
02/01/1997	G1	1	SSC2	TPR04	0.0341950554125
02/01/1997	G1	1	SSC3	TPR01	0.0827127584195
02/01/1997	G1	1	SSC3	TPR02	0.0662850599774
02/01/1997	G1	1	SSC3	TPR03	0.0128906213593
02/01/1997	G1	1	SSC3	TPR04	0.0083041485654
02/01/1997	G1	1	SSC4	TPR01	0.0389750765866
02/01/1997	G1	1	SSC4	TPR02	0.0404531799643
02/01/1997	G1	1	SSC4	TPR03	0.0451367665504
02/01/1997	G1	1	SSC4	TPR04	0.0652153533046

Page 1

6.6.6 FORM ECP_SSC

6.6.6.1 Screen Layout

The form ECP_SSC is activated from the Maintain Calculation Parameters (ECP) subsystem menu item.



6.6.6.2 Screen Behaviour

The form ECP_SSC allows the EAC/AA users to maintain the values of Standard Settlement Configurations and specify if Daily Profile Coefficients should be loaded for those values.

The table below outlines all the possible actions associated with the form ECP_SSC:

Form Action On	**Form Response**
Selection of Form	Display the three blocks of the form, place the cursor on the top row of the first column and puts the form in query mode.
Entering a Query	Allow user to enter the field(s) or part of the field(s) followed by % for query action to take place.
Executing a Query	Execute the query in order to return all the values or if any fields have been specified to return the values matching the selection.
Cancelling Query	Cancels the query mode and puts the form in insert mode.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	Move the cursor to the next column, if at the last column move cursor to next row.
Clicking On Scroll Bar	Highlight the record corresponding to the position of the scroll bar.
Clicking on Don't Load	Allow the user to amend all the displayed Standard

Daily Profile Coefficients	Settlement Configuration rows so that Daily Profile Coefficients will not be loaded for any of them.
Insert Row	Allow a new row for Standard Settlement Configuration to be entered.
Delete Row	Deletes the highlighted row.
Exit	Allows the changes to Standard Settlement Configuration values to be rolled back or committed to the database.
Function Key	Display mapping of logical functions to physical keys.
Help Key	Invokes EAC/AA System help.
Commit	Commit the changes to Standard Settlement Configuration values to the database.

6.6.6.3 Description

This form allow EAC/AA users to browse, amend and insert new values of Standard Settlement Configuration.

It contains three blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Standard Settlement Configuration Block, the block is associated with the table edb_std_settlement_configs, allowing inserts, updates or queries to be carried out on the stored rows in that table.
- Control Block, this block contains a check box, when checked all the edb_std_settlement_configs rows displayed will be amended so that Daily Profile Coefficients will not be loaded for any of those rows.

The following user role will be able to access this form:

- EAC/AA Operations Supervisor

6.6.6.4 Form Structure

Field Name	**Description**
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button ENTER_QUERY	Puts the for in “Query Mode” and allows fields to be entered in the fields of “STND_SETLMNT_CONFIG” Block.
Button EXECUTE_QUERY	Executes a query based on the field(s) entered.
Button CANCEL_QUERY	Cancels the query mode and allows a row to be inserted.
Button NEXT_RECORD	Moves the cursor to the next row of the “STND_SETLMNT_CONFIG” Block,

	highlighting the row.
Button PREVIOUS_RECORD	Moves the cursor to the previous row of the "STND_SETLMNT_CONFIG" Block, highlighting the row.
Button DELETE_ROW	Allows a row to be deleted from the "STND_SETLMNT_CONFIG" Block.
Button INSERT_ROW	Allows a new row to be added within the "STND_SETLMNT_CONFIG" block.
Button COMMIT_CHANGE	Commits the changes to Standard Settlement Configuration rows in the "STND_SETLMNT_CONFIG" block to the database.
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: STND_SETLMNT_CONFIG	Block contains two columns and a check box column and is associated with the table edb_std_settlement_configs.
Field SSC_ID	edb_std_settlement_configs.std_sett_config _id. Only one entry is allowed for a particular Standard Settlement Configuration.
Field SSC_DESC	edb_std_settlement_configs.Configuration_ desc.
Check Box SSC_LOAD_DPC	When checked amends edb_std_settlement_configs.load_dpc for the selected row to 'N'.
Block: CONTROL	Contains one check box to allow amendment to all the displayed rows .
Check Box STOP_LOAD_DPC	When checked amends edb_std_settlement_configs.load_dpc of all the displayed rows to 'N'.

6.6.6.5 Action on Form Load

Display the three blocks of the form, place the cursor on the top row of the first column and puts the form in query mode.

6.6.6.6 Action on Query

Execute a query based on the field(s) complete/partial of the "STND_SETLMNT_CONFIG" Block on table edb_std_settlement_configs.

6.6.6.7 Action on Update

Update the field of edb_std_settlement_configs amended by the user upon commit.

6.6.6.8 Action on Insert

Insert the row entered by the user in the edb_std_settlement_configs table upon commit.

6.6.6.9 Action on Delete

Delete the row removed by the user from edb_std_settlement_configs table upon commit.

6.6.6.10 Action on Button ENTER_QUERY

Put the form in "Query Mode" and allow fields to be entered in the fields of "STND_SETLMNT_CONFIG" Block.

6.6.6.11 Action on Button EXECUTE_QUERY

Execute a query based on the field(s) entered complete/partial of the "STND_SETLMNT_CONFIG" Block on edb_std_settlement_configs.

6.6.6.12 Action on Button NEXT_RECORD

Move the cursor to the next row of the " STND_SETLMNT_CONFIG" Block, highlighting the row.

6.6.6.13 Action on Button PREVIOUS_RECORD

Move the cursor to the previous row of the "STND_SETLMNT_CONFIG" Block, highlighting the row.

6.6.6.14 Action on Button CANCEL_QUERY

Cancel the query mode and allow insertion of new rows.

6.6.6.15 Action on Button INSERT_ROW

Allow a new row to be added within the "STND_SETLMNT_CONFIG" block.

6.6.6.16 Action on Button DELETE_ROW

Allow a row to be deleted from the "STND_SETLMNT_CONFIG" Block.

6.6.6.17 Action on Button COMMIT_CHANGE

Commit the changes to Standard Settlement Configurations in the "STND_SETLMNT_CONFIG" block to the database.

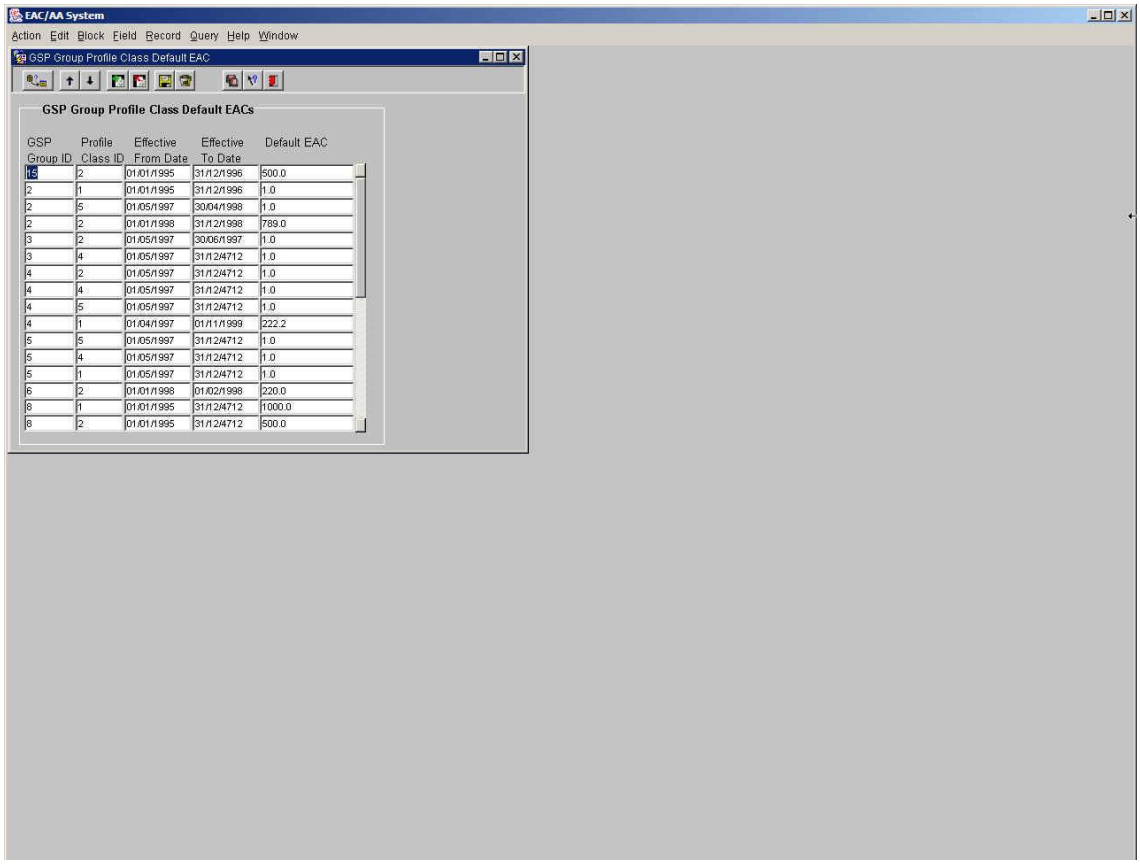
6.6.6.18 Action on Check Box STOP_LOAD_DPC

When checked amend the value of edb_std_settlement_configs.load_dpc for all the rows displayed to 'N'.

6.6.7 FORM ECP_GPD

6.6.7.1 Screen Layout

The form ECP_GPD is activated from the Maintain Calculation Parameters (ECP) subsystem menu item.



6.6.7.2 Screen Behaviour

The form ECP_GPD allows the EAC/AA users to browse the values of GSP Group Profile Class Default EACs, which are used in the calculations of default EAC values in place of negative EACs.

The screen behaviour for the System Operator and Operations Supervisor user roles accessing the form are as follows:

- The form will operate in browse mode. Queries could be carried out on existing data. However, no amendment to the existing data or entry of new GSP Group Profile Class Default EACs will be allowed.

The table below outlines all the possible actions associated with the form ECP_GPD:

Form Action On	Form Response
Selection of Form	Display the two blocks of the form, place the cursor on the top row of the first column and puts the form in query mode.

Entering a Query	Allow user to enter the field(s) or part of the field(s) followed by % for query action to take place.
Executing a Query	Execute the query in order to return all the values or if any fields have been specified to return the values matching the selection.
Cancelling Query	Cancels the query mode and puts the form in insert mode.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	Move the cursor to the next column, if at the last column move cursor to next row.
Clicking On Scroll Bar	Highlight the record corresponding to the position of the scroll bar.
Clear Record	Clears the record from the form without deleting it on the database.
Function Key	Display mapping of logical functions to physical keys.
Help Key	Invokes EAC/AA System help.
Exit	Allows the changes to GSP Group Profile Class Default EACs values to be rolled back or committed to the database.
Commit	Commit the changes to GSP Group Profile Class Default EAC values to the database.

6.6.7.3 Description

This form allow EAC/AA users to browse values of GSP Group Profile Class Default EACs.

It contains two blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- GGPCDE Block, the block is associated with the table edb_gspg_pc_def_eac, allowing inserts, updates or queries to be carried out on the stored rows in that table.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor
- EAC/AA System Operator

Form Structure

Field Name	**Description**
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button ENTER_QUERY	Puts the for in “Query Mode” and allows fields to be entered in the fields of

	"GGPCDE" Block.
Button EXECUTE_QUERY	Executes a query based on the field(s) entered. The rows are ordered by descending Settlement Date.
Button CANCEL_QUERY	Cancels the query mode and allows a row to be inserted.
Button NEXT_RECORD	Moves the cursor to the next row of the "GGPCDE" Block, highlighting the row.
Button PREVIOUS_RECORD	Moves the cursor to the previous row of the "GGPCDE" Block, highlighting the row.
Button CLEAR_RECORD	Allows a row to be cleared from the form without being deleted on the database.
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: GGPCDE	Block contains two columns and is associated with the table edb_gspg_pc_def_eac.
Field GSP_GROUP_ID	edb_gspg_pc_def_eac.gsp_group_id.
Field PROFILE_CLASS_ID	edb_gspg_pc_def_eac.profile_class_id.
Field EFFECTIVE_FROM_SETT_DATE	edb_gspg_pc_def_eac.eff_from_sett_date
Field EFFECTIVE_TO_SETT_DATE	edb_gspg_pc_def_eac.eff_to_sett_date
Field GSPG_PC_DEFAULT_EAC	edb_gspg_pc_def_eac.gspc_pc_default_eac

6.6.7.4 Action on Form Load

Display the two blocks of the form, place the cursor on the top row of the first column and puts the form in query mode.

6.6.7.5 Action on Query

Execute a query based on the field(s) complete/partial of the "GGPCDE" Block on table edb_gspg_pc_def_eac.

6.6.7.6 Action on Button ENTER_QUERY

Put the form in "Query Mode" and allow fields to be entered in the fields of "GGPCDE" Block.

6.6.7.7 Action on Button EXECUTE_QUERY

Execute a query based on the field(s) entered complete/partial of the "GGPCDE" Block on edb_gspg_pc_def_eac.

6.6.7.8 Action on Button NEXT_RECORD

Move the cursor to the next row of the "GGPCDE" Block, highlighting the row.

6.6.7.9 Action on Button PREVIOUS_RECORD

Move the cursor to the previous row of the " GGPCDE" Block, highlighting the row.

6.6.7.10 Action on Button CANCEL_QUERY

Cancel the query mode and allow insertion of new rows.

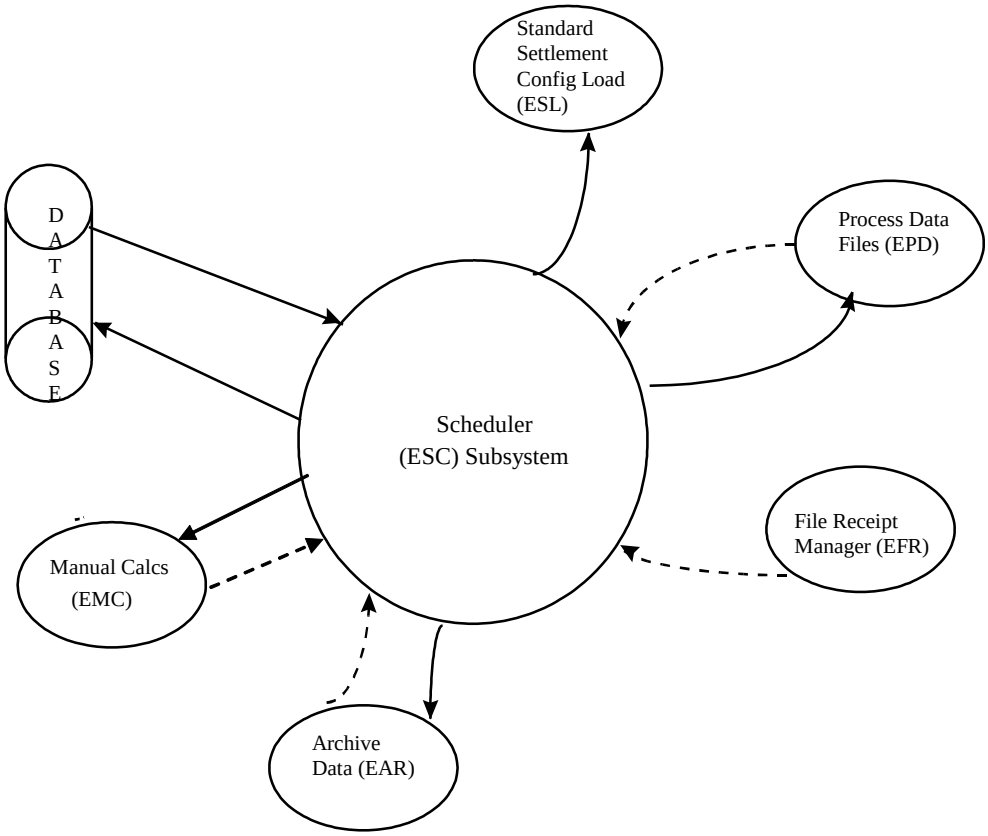
7 Subsystem ESC Specifications

7.1 Introduction

This subsystem provides the facility to manage the execution of batch processes from other subsystems within the EAC/AA subsystem.

All requests for initiation of batch jobs are detected by the Scheduler (ESC) subsystem via its database table.

7.2 Subsystem Context



The above diagram shows the different subsystems using the facilities provided by the Scheduler (ESC) subsystem. Solid lines from ESC to other subsystems show procedure details being passed. The broken lines indicate process initiation, the details for which are passed to the Scheduler (ESC) subsystem via the database.

There are three types of interfaces to the Scheduler (ESC) subsystem, the actual details of the parameters passed to the Scheduler are specified within the subsystem specifications.

7.2.1 Procedure Details Interface

Details of jobs to schedule are passed to the Scheduler (ESC) subsystem from other subsystems via the edb_jobs table.

The other subsystem inserts into the edb_jobs table a row which contains the name of the process to be scheduled and parameters identifying the file to be processed.

The other subsystem may be the File Receipt Manager (EFR), the Process Data Files (EPD), the Archive Data (EAR), or the Manual Calculations (EMC). Within EFR it is the batch daemon process which inserts the row, whereas for EPD and EAR it is a form procedure.

The jobs scheduled from the File Receipt Manager are the Standard Settlement Configuration Load and, only if EAC/AA is running in Automatic Mode, the Daily Profile Coefficient Load and EAC/AA and DMA Calculations; other jobs are scheduled from the form procedures.

The individual scheduled processes are passed the unique job_number by the ESC_BQD_RUN. Using the job_number, the details of the parameters necessary for execution of the process are then read by the process directly from the parameter fields edb_jobs.parameter1 to edb_jobs.parameter7.

7.2.2 Process initiation Interface

The processes with the specific subsystems are initiated by the Scheduler (ESC) subsystem by querying the edb_jobs table for the details such as the executable name. The details of the table queried and the scheduling are given in the procedure specification sections of this subsystem.

7.2.3 Database Interface

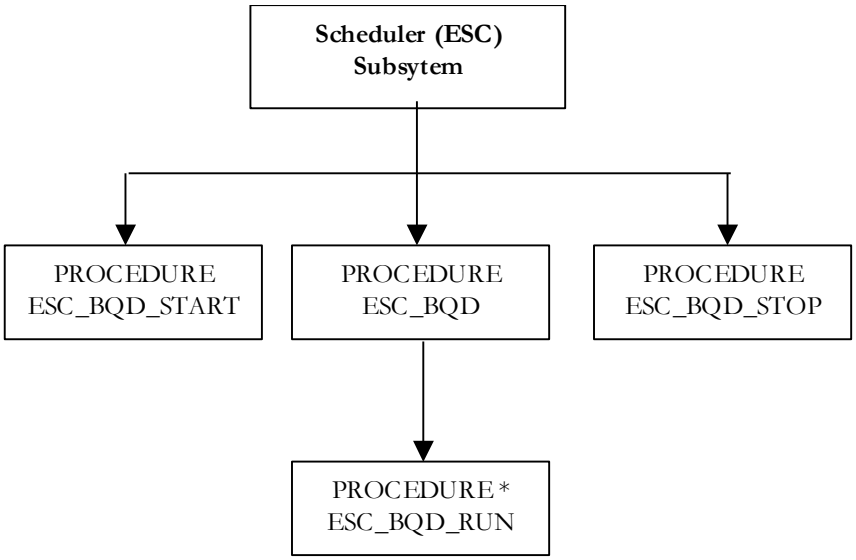
The details of the data passed between the subsystem and the database are included in the system data and procedure sections.

7.2.4 Special Considerations

It is possible to have multiple copies of a particular type of background procedure running in parallel. The maximum number of processes of a type of procedure is held in edb_procedure_codes. The actual number is dependent on the type of procedure. Thus, procedures that interfere with each other, such as loading in Profile Coefficients will only run one at a time. Calculations for EAC/AA and Deemed Meter Advances will be allowed multiple concurrent runs. The dependencies between the EAC/AA procedures within the EAC/AA subsystems are not checked by this subsystem. For example a procedure of Archive Data (EAR) subsystem may lock the tables it operates on while processing. The Scheduler (ESC) procedures will not stop a procedure such as Load Daily Profile Coefficients of Process Data Files (EPD) subsystem to be scheduled and begin execution. In such cases the procedure locking the resource first will have the priority and other subsequent procedures will postpone their processing until the completion of the first procedure locking the resource.

The starting and stopping of the procedure daemon ESC_BQD using ESC_BQD_START and ESC_BQD_STOP will be a manual procedure.

7.3 Subsystem Processing



The Scheduler (ESC) subsystem consists of four procedures. The procedure ESC_BQD_START starts the Batch Queue Daemon ESC_BQD procedure in the background. The Batch Queue Daemon ESC_BQD will in turn initiate another procedure upon identifying a queued job awaiting processing. The procedure ESC_BQD_RUN, once initiated will be in charge of initiation and monitoring of progress of the procedures associated with the other subsystems within the EAC/AA system. The procedure ESC_BQD_STOP will terminate the background execution of the Batch Queue Daemon ESC_BQD procedure.

In order for the procedure ESC_BQD_RUN to identify and execute the correct procedure of the other EAC/AA subsystem procedures, the procedure ESC_BQD will pass the value of edb_jobs.job_number of a job identified as awaiting execution to ESC_BQD_RUN.

7.4 Data usage

All the data associated with this subsystem will be stored in the online database.

7.4.1 System Data

The details of table accessed by this subsystem and the mode of their access is as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
PROCEDURE ESC_BQD	edb_jobs		X		X
	edb_procedure_codes				X
PROCEDURE ESC_BQD_RUN	edb_jobs		X		X
	edb_procedure_codes				X
PROCEDURE	edb_jobs			X	X

ESC_BQD_STOP					

7.4.2 Local Data

The details of the "Process ID" associated with the procedure ESC_BQD, once initiated by the procedure ESC_BQD_START, will be stored locally in a file called ESC_BQD_CNTL.

7.5 Procedure Details

The Scheduler (ESC) subsystem consists of four procedures, the following four sections give details of these procedures.

7.5.1 Procedure ESC_BQD_START Specification

This procedure facilitates initiation of the ESC_BQD process in the background. The procedure will have access to the location of the executable for the procedure ESC_BQD via the system environmental variables. The procedure starts ESC_BQD in the background.

This procedure will be implemented in Shell script.

7.5.2 Procedure ESC_BQD_STOP Specification

This procedure facilitates termination of the ESC_BQD process running in background. The procedure will have access to the location of the executable for the procedure ESC_BQD via the system environmental variables.

The following processing is carried out by this procedure:

If the control file ESC_BQD_CNTL does not exist then abort.

If the control file ESC_BQD_CNTL exists then read the "Process ID" from the file, kill the background process associated with the read "process ID", delete the control file ESC_BQD_CNTL and exit.

Additionally, this process will have a housekeeping function of deleting rows from edb_jobs, where the job_status indicates that the process has completed.

This procedure will be implemented in Shell script.

7.5.3 Procedure ESC_BQD Specification

This procedure monitors in pre-defined intervals the records in the table edb_jobs, identifying new requests for jobs. Once a new request has been identified, depending on the "Queue Type" and the current "Execution Status" of similar procedures, it will either service the request by initiating the procedure ESC_BQD_RUN or wait until completion of the current similar job to service the request.

The following processing is carried out by this procedure on starting:

- Obtain the ESC_BQD lock to ensure no other ESC_BQD processes are running. If the lock cannot be granted then exit.
- Create the control file.

- Insert the "Process ID" associated with this ESC_BQD background process into it.
- Update the job status to W for any records in EDB_JOBS that are not locked and have a status of R. This re-schedules jobs that have not completed.

The following processing is carried out by this procedure on stopping:

- Delete the control file.

The following processing is carried out by this procedure:

Wake up

Read the all the rows edb_jobs table in order of job_number ascending, for all combination of job_status of 'W' and procedure_name

If found then

Read edb_procedure_codes.queue_limit for the procedure_name

If there are less than queue_limit jobs of this type running then

Initiate ESC_BQD_RUN passing it edb_jobs.job_number

update edb_jobs.job_status to 'R'

else

skip

This procedure will be implemented using Oracle Pro*C.

7.5.4 Procedure ESC_BQD_RUN Specification

This procedure facilitates execution of procedures of the other EAC/AA subsystems. This procedure will be responsible for reading the details of the executable associated with the procedure. Then initiating the executable and waiting on its successful or unsuccessful completion. Finally, it will update the edb_jobs.job_status accordingly.

The procedure ESC_BQD_RUN is initiated as a background process by the procedure ESC_BQD. It receives as an input the value of edb_jobs.job_number.

The following processing is carried out by this procedure:

Read edb_jobs.procedure_name based on the value of job_number passed in

Read edb_procedure_codes based on the value of edb_jobs.procedure_name

Get the details of the procedure executable and its type.

Initiate the process in background, update edb_jobs.job_status to 'R' and wait for its return.

Depending on the return value from the initiated background process update the edb_jobs.job_status to one of 'X', 'F' or 'C'.

The details of job statuses are provided in the edb_jobs table definition.

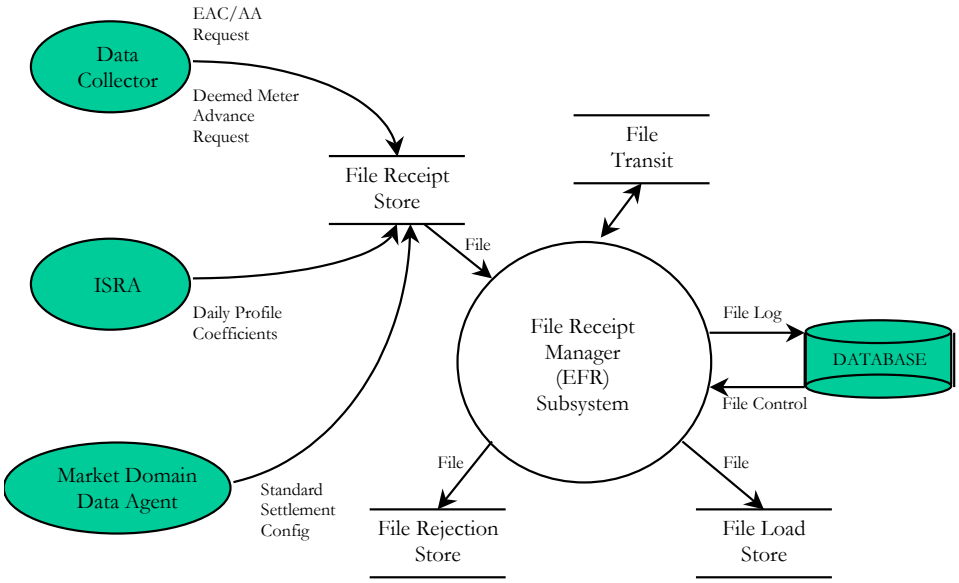
This procedure will be implemented using Oracle Pro*C.

8 Subsystem EFR Specification

8.1 Introduction

The File Receipt Manager (EFR) Subsystem is responsible for the receipt of data files that arrive on the EAC/AA system. It also facilitates the automatic loading of Standard Settlement Configuration files, and if EAC/AA was installed to run in Automatic Mode, it facilitates the automatic processing of Daily Profile Coefficient files, and EAC/AA and DMA Calculation Request Files.

8.2 Subsystem Context



The details of the interfaces are provided in the next three sections. The File Receipt Interface and the File Store Interface describe all the files received by the system and all locations where they are stored.

8.2.1 File Receipt Interfaces

Four types of files are received by this subsystem. The details of each of these files is listed in the EAC/AA External Interfaces section.

- EAC/AA Request File
- Deemed Meter Advance Request File
- Daily Profile Coefficients File
- Standard Settlement Configuration File

8.2.2 File Store Interface

This section provides a list of all the locations where the files handled by the subsystem are stored:

- File Receipt Store: Directory on the system where the data files first arrive; these are placed by the Data Collector, ISRA and Market Domain Data Agent via an electronic interface.

- File Reject Store: Directory to contain corrupt/unrecognised files
- File Store: Directory to contain accepted or 'good' files.
- File Transit: Directory to store the file being processed by the File Receipt Manager temporarily.

8.2.3 Database Interface

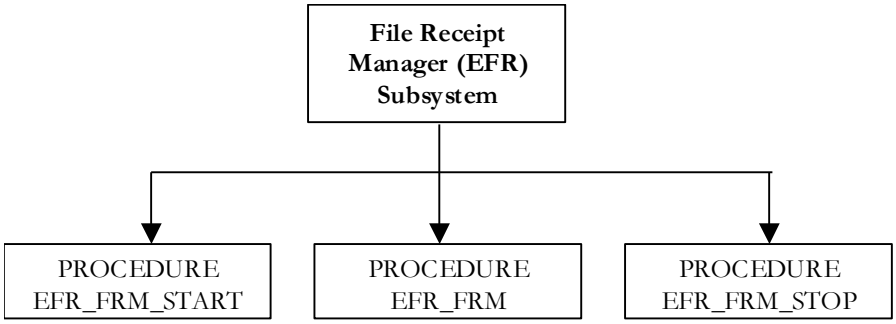
The file header details are extracted and stored in the database. The File Receipt Manager uses system configuration parameters stored in the database in order to locate the directory associated with the file stores used by the subsystem.

8.2.4 Special Considerations

The following assumptions have been in the design of the subsystem:

- Only data files are processed by this subsystem.
- All incoming data files have unique file names.
- Starting and stopping of the File Receipt Manager daemon processes are manual procedures.
- The subsystem needs to recover if the process falls over unexpectedly.

8.3 Subsystem Processing



The subsystem consists of a daemon process (EFR_FRM) which is started by the EFR_FRM_START procedure, and is shutdown using the EFR_FRM_STOP procedure.

The File Receipt Manager process (EFR_FRM) polls a directory for incoming files. The data files from the Data Collector, ISRA and Market Domain Data Agent are placed in this directory via an electronic interface. The File Receipt Manager logs the receipt of each data file in the database; however, it does not log the receipt of a corrupt file i.e. a file with an invalid header, bad checksum. The File Receipt Manager moves the next file to be processed to the File Transit Store, after the completion of processing the data file is copied to an appropriate directory i.e. valid and corrupt data files are moved to different locations.

8.4 Data Usage

8.4.1 System Data

The details of the tables accessed by this subsystem are as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
Procedure EFR_FRM	edb_jobs	X			
	edb_ref_domains				X
	edb_ref_values				X
	edb_system_configuration				X
	edb_market_participants				X
	edb_data_files	X			

When logging the receipt of a file in the database table: edb_data_files a sequence number will be used to uniquely identify a file; this number is used to populate the field file_seq_num. The participant_id and market_role is populated from the source participant_id and market_role fields found in the file header. Also, the type of the file, held in file_content_code, is populated with defined values.

8.4.2 Local Data

The details of the "Process ID" associated with the procedure EFR_FRM once initiated by the procedure EFR_FRM_START will be stored locally in a file called EFR_FRM_CNTL.

8.5 Procedure Details

8.5.1 Procedure EFR_FRM_START Specification

This procedure facilitates the initiation of the EFR_FRM process in the background. The procedure will have access to the location of the executable for the procedure EFR_FRM via the system environmental variables. The procedure starts the EFR_FRM to run in the background.

This procedure will be implemented in Shell script.

8.5.2 Procedure EFR_FRM_STOP Specification

This procedure facilitates termination of the EFR_FRM process running in background. The procedure will have access to the location of the executable for the procedure EFR_FRM via the system environmental variables.

The following processing is carried out by this procedure:

If the control file EFR_FRM_CNTL does not exist then abort.

If the control file EFR_FRM_CNTL exists then read the "Process ID" from the file, kill the background process associated with the read "process ID", delete the control file EFR_FRM_CNTL and exit.

This procedure will be implemented in Shell script.

8.5.3 Procedure EFR_FRM Specification

Procedure name: File Receipt Manager

This procedure is implemented using Pro*C.

The inputs to this procedure are the following files:

- EAC/AA Data File
- Deemed Meter Advance Request File
- Daily Profile Coefficients File
- Standard Settlement Configuration File

The details of the above files are outlined in the EAC/AA External Interfaces section.

On start up read the configuration parameters [File Receipt Store], [File Reject Store], [File Store] and [EFR Polling Frequency] i.e. time interval for which the process sleeps between searches from the edb_ref_domains and edb_ref_values table. Given that the EAC/AA directories could be placed on different file systems, the files are copied between directories (exception to this is the file movement to the File Transit Store) rather than moved. As a result the data written to the disk will be synchronised with the file system in order to ensure that no data loss will be encountered in case of machine failure.

The following processing is carried out by this procedure on starting:

- Obtain the EFR_FRM lock to ensure no other EFR_FRM processes are running. If the lock cannot be granted then exit.
- Create the control file.
- Insert the "Process ID" associated with this EFR_FRM background process into it.

The following processing is carried out by this procedure on stopping:

- Delete the control file.

The File Receipt Manager performs the following processing each time it awakes. It then sleeps again for a period defined by the [EFR Polling Frequency]:

- Lock file that is being processed, by moving it to the File Transit Store.
- Extract file details from the file header, and thereby determine file type.

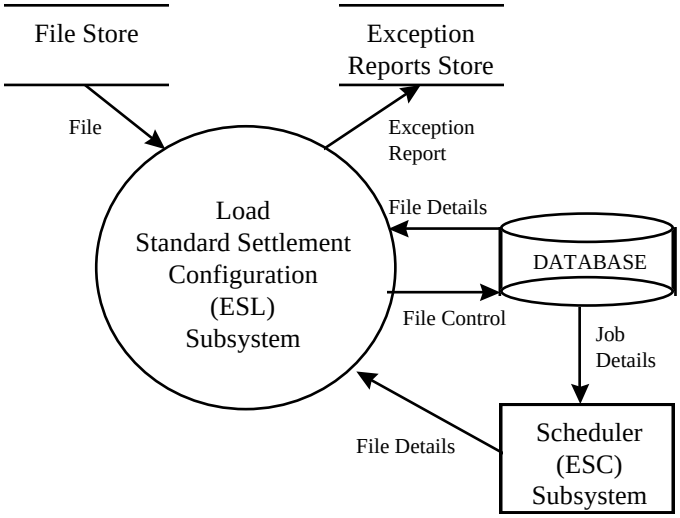
- Read through the file and count the number of records in the file.
- If the file has no footer and it was originally received less than 60 minutes ago, it is ignored - the assumption is that it is in the process of arriving. If the file has no footer and it was originally received greater than 60 minutes ago, it is processed - the assumption is that it is corrupt and it will be recorded as rejected in the next step.
- If the file details from the header was successfully extracted and the file is valid i.e. checksum is correct and the record count in the footer matches with the number of records actually read, then log the receipt of this file in the database in the table edb_data_files, allocating a new file sequence number first, copy the file to the file load directory defined by the parameter [File Store]. Otherwise, copy the file to the file reject directory defined by the parameter [File Reject Store].
- The file_status field in the edb_data_files record is set as follows: Read the system mode parameter from the edb_system_configuration table. If system_mode is set to 'A' (Automatic), file_status of Daily Profile Coefficients files is set to 'M' (Multiple) and the file_status of EAC/AA and DMA Request files is set to 'R' (Ready to process). If system_mode is set to 'M' (Manual), file_status is set to null. (In Manual Mode, it is the form EPD_PDF which subsequently sets the file status to 'R' or 'M').
- If the file type is a Standard Settlement Configuration file and was not rejected then also log the receipt of this file in the edb_jobs table by calling the database procedure responsible for populating that table. The edb_jobs record references the edb_data_files record by holding the file sequence number in the edb_jobs.parameter1 column. This will enable the Scheduler (ESC) subsystem to initiate the loading of this file in the database.
- If EAC/AA is running in Automatic Mode and the file type is a Daily Profile Coefficient file or an EAC/AA Request File or a DMA Request File, and the file was not rejected then log the receipt of the files in the edb_jobs table in the same way.
- The recovery considerations are as follows.
    - The file in the File Transit Store will remain in the directory until the next time the File Receipt Manager is invoked.
    - The database updates are committed before the file is copied.
    - If the process falls over before the file has been copied, there may be an update in edb_data_files. A check for this condition is made on start up and the file is then copied.
    - If the process falls over after the file has been copied to either the File Store or the Reject Store, then any necessary modifications to the database would have already been carried out.

9 Subsystem ESL Specifications

9.1 Introduction

The Load Standard Settlement Configuration (ESL) subsystem loads the data file containing Standard Settlement Configurations into the database. The File Receipt Manager (EFR) subsystem receives the file when it first arrives on the system from the Market Domain Data Agent; moves it to the 'File Load Store', and informs the Scheduler (ESC) subsystem to load the file. The Scheduler subsystem then initiates the actual loading process.

9.2 Subsystem Context



The following two sections describe the types of interfaces to the Load Standard Settlement Configuration (ESL) subsystem.

9.2.1 File Interface

There are two areas where the file are transferred to and from:

- File Store - Directory containing the Standard Settlement Configurations data file.
- Exceptions Report Store - Directory where the Exception Reports are placed.

The EAC/AA External Interfaces section provides the details of Standard Settlement Configuration Files.

9.2.2 Database Interface

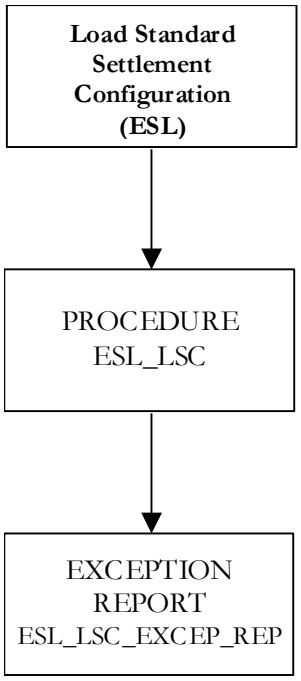
The file location details are read from the database.

The standard settlement configurations data is loaded into the database.

9.2.3 Scheduler (ESC) Subsystem Interface

The Scheduler (ESC) subsystem passes the file details via the database to the ESL subsystem in the form of a job number.

9.3 Subsystem Processing



This subsystem loads the data file in the File Store containing the standard settlement configurations into the database. The File Receipt Manager informs the Scheduler of a new file arrival; the Scheduler then initiates the Load Standard Settlement Configuration procedure.

9.4 Data Usage

9.4.1 System Data

The details of the tables accessed by this subsystem are as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
Procedure ESL_LSC	edb_jobs				X
	edb_data_files		X		X
	edb_ref_values				X
	edb_ref_domains				X
	edb_std_settlement_configs	X			X
	edb_av_frac_y_cons	X	X		X

9.4.2 Local Data

No local data is held within this subsystem.

9.5 Procedure Details

9.5.1 Procedure ESL_LSC Specification

Procedure name: Load Standard Settlement Configuration

This procedure is implemented using Pro*C.

The input to this procedure is the Standard Settlement Configurations file. See the EAC/AA External Interface section on file format descriptions.

On start up get the parameters: file_seq_num from the edb_jobs table using the job_number passed in by the Scheduler (ESC).

Get the file location from the edb_ref_values using the location_id (obtained from the edb_data_files using the file details: file_seq_num from the last step).

Lock the file being read.

Read past the file headers (EAC/AA data files have two header records).

For each record in the file with a record type of 'SCI' do the following:

- Read the Standard Settlement Configuration ID and Description. If the Standard Configuration ID does not exist in the edb_std_settlement_configs table then load the standard settlement configurations data into this table; populate the fields std_sett_config_id and configuration_desc, set load_dpc to a default value of 'N'.
- If the Standard Configuration ID exists in the database (edb_std_settlement_configs table) and the Standard Settlement Configuration Description is the same to that in the database then ignore this record.
- If the Standard Configuration ID exists in the database and the Standard Settlement Configuration Description is different to that in the database then write this record to the Exception Report, and ignore this record.
- Save the Standard Configuration ID in memory since it forms part of the edb_av_frac_y_cons records

For each record in the file with a record type of 'VSD' do the following:

- Save the Profile Class Id in memory since it forms part of the edb_av_frac_y_cons records

For each record in the file with a record type of 'ASD' do the following:

- Save the GSP Group Id, Effective From Settlement Date and Effective To Settlement Date in memory since they form part of the edb_av_frac_y_cons records

For each record in the file with a record type of 'AFD' do the following:

- Read the Average Fractions of Yearly Consumption and Time Pattern Regime. Form a candidate edb_av_frac_y_cons record from these two fields plus the Standard Settlement Configuration Id from the last SCI record, the Profile Class Id from the last VSD record and the GSP Group Id, Effective From Settlement Date and Effective To Settlement Date from the last ASD record.
- If there is no record already in the database for the GSP Group Id / Profile Class Id / Standard Settlement Configuration Id / Time Pattern Regime combination, insert the record in the database.
- If there is already a record in the database for the GSP Group Id / Profile Class Id / Standard Settlement Configuration Id / Time Pattern Regime combination and the Effective From Settlement Date read from the file is equal to or later than that held in the database, then replace the record in the database.
- Otherwise, ignore the record.

9.5.2 REPORT ESL_LSC_EXCEP_REP

Report name: Load Standard Settlement Configuration Exception Report.

This report is generated by the ESL_LSC procedure which reports on the exceptions encountered while loading the Standard Settlement Configurations.

The report layout is as follows:

Run Time: 12/06/1997 12:02:19 Organisation: An Electricity Company

Load Standard Settlement Configuration Exception Report

User: EACAA

File Name: SSC1004319.dat

Settlement Date: 12/04/1997

Standard Settlement Configuration	Reason for Rejection
28	SSC Description in database can't be changed, record: 12

Page: 1

Run Time: 12/06/1997 12:02:19 Organisation: An Electricity Company

Load Standard Settlement Configuration Exception Report

No. of Standard Settlement Configurations not loaded: 1

End of Report

Page: 2

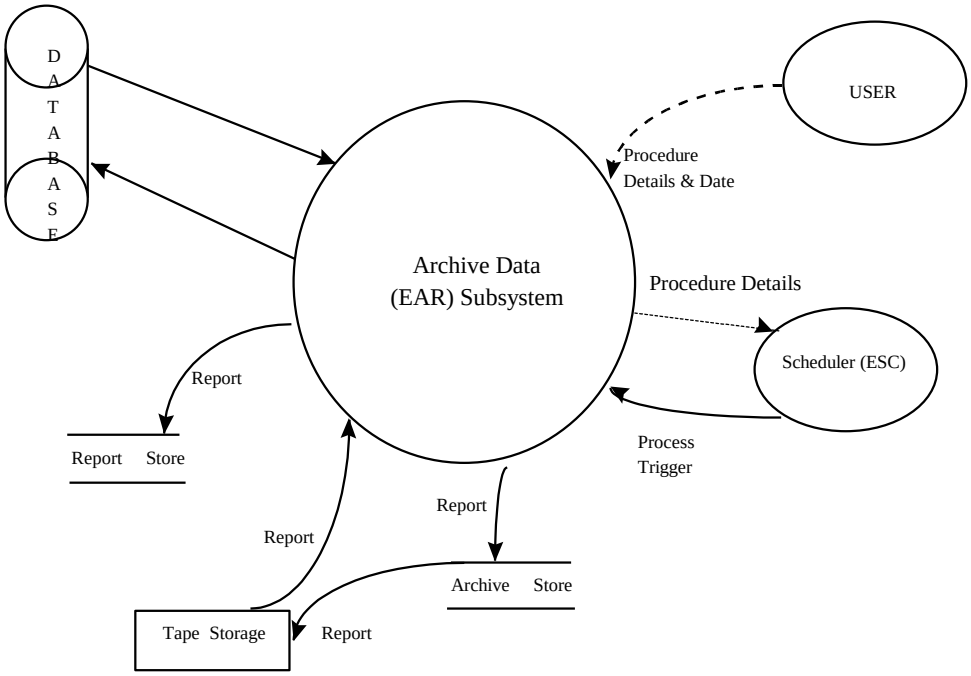
10 Subsystem EAR Specifications

10.1 Introduction

This subsystem allows data stored in the EAC/AA system to be archived to a tape drive, it also facilitates restoration of the data in report form from a tape drive.

The archiving and restoration processes are initiated by the user via the user interface. The processes of archive and restore will then execute in the background on the Server machine.

10.2 Subsystem Context



The above diagram shows all the different interfaces to and from the Archive Data (EAR) subsystem.

The user initiates the archive or restore of the reports to or from the external tape drive via the database by calling a procedure from the user interface. There are two forms within this subsystem. EAR_ADP to initiate the archive process and EAR_RAD to restore the report of the archive data to the Reports Store.

Once the job has been scheduled the Scheduler (ESC) will initiate one of the two procedures in the subsystem, procedure EAC_ADP to archive the data in report form to the tape drive or procedure EAC_RAD to restore the report.

The details of the forms and procedures within this subsystem are given in the procedure section of this subsystem.

The four types of interfaces associated with this subsystem are explained in the following four sections:

10.2.1 Database Interface

The interactions between the procedures with the Archive Data (EAR) subsystem and the database have been specified in the System Data and the procedure sections.

10.2.2 Report Interface

The details of the report have been specified in the Procedures under the REPORT EAR_ADP_RPT section.

10.2.3 Procedure Details and Date Interface

The details required for the execution of procedure within this subsystem are passed from the user interface via a database. This is achieved by calling a procedure from the forms within Archive Data (EAR) subsystem. Subsystem processing section provides the details of the data passed between the user interface and the procedures within Archive Data (EAR) subsystem.

10.2.4 Process Trigger Interface

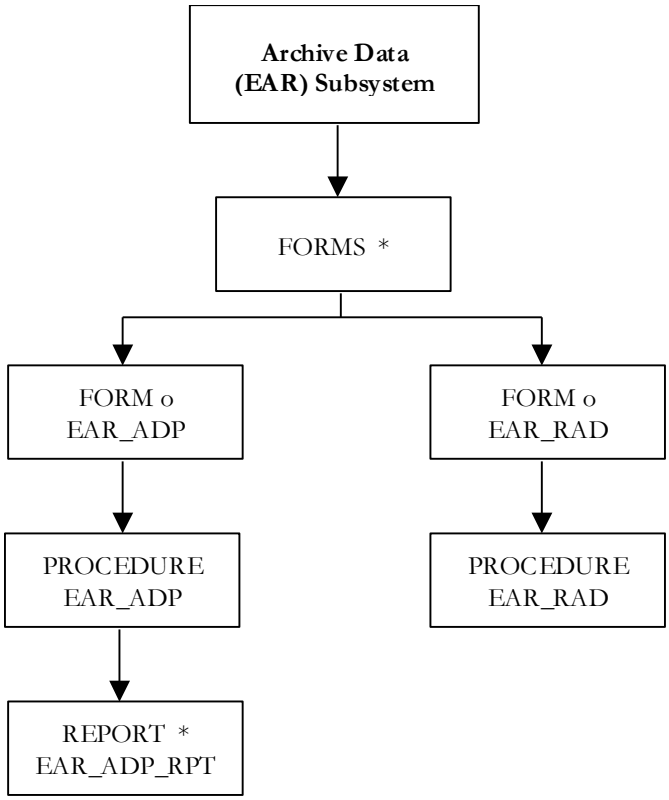
The procedures EAR_ADP and EAR_RAD are executed by the Scheduler (ESC) subsystem. The details of how the procedures are executed by the Scheduler (ESC) subsystem are given in the (ESC) subsystem specifications.

10.2.5 Special Considerations

The Archive Data (EAR) subsystem will not maintain the details of the tape the archive data is sent to. The details of the Settlement Date from which the data is being archived will need to be related to the tape by the EAC/AA user manually.

Because of the number of rows involved when deleting Daily Profile Coefficients, this operation is carried out in a number of transactions in EAR_ADP. This means that if the task fails unexpectedly it will be in an untidy state. Thus, when restarted it is necessary for the task to clean itself up.

10.3 Subsystem processing



This subsystem provides the functionality associated with performing the archiving of Daily Profile Coefficients and superseded Smoothing Parameters, it also provides the facility to restore reports associated with the archived data.

This subsystem contains two forms EAR_ADP and EAR_RAD, the specification of the form are outlined in sections to follow. The form allow the EAC/AA users to initiate the batch processes via the Scheduler Subsystem (ESC) on the server. The batch processes will be responsible for deleting the relevant data, producing reports to be archived and restoration of the archived reports from the tape storage.

Procedures EAR_ADP, EAR_RAD and the report EAR_ADP_RPT are described in the sections to follow.

The data passed between the form and the subsystem batch processes via the Scheduler (ESC) subsystem is as follows:

From	To	Data
FORM EAR_ADP	PROCEDURE EAR_ADP	Procedure Name Settlement_date
FORM EAR_RAD	PROCEDURE EAR_RAD	Procedure Name Settlement_date

10.4 Data usage

The System Data section shows the database tables accessed and the mode of access by the procedures within the subsystem. The Local data section describes the local data held within the Archive Data (EAR) subsystem.

10.4.1 System Data

The details of the tables accessed by this subsystem are as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
FORM EAR_ADP	edb_jobs	X			
FORM EAR_RAD	edb_jobs	X			
PROCEDURE EAR_ADP	edb_ref_domains				X
	edb_ref_values				X
	edb_data_files		X	X	X
	edb_report_files			X	X
	edb_jobs				X
	edb_daily_profile_coefficients			X	X
	edb_system_configuration				X
	edb_smoothing_parameters			X	X
PROCEDURE EAR_RAD	edb_data_files				X
	edb_jobs				X

10.4.2 Local Data

The report EAR_ADP_RPT is stored temporary in the Archive Store area prior to transfer to the tape storage and deletion.

10.5 Procedure Details

Specifications for the procedures, report and forms contained within this subsystem are given in the following sections.

10.5.1 PROCEDURE EAR_ADP Specification

This procedure is initiated indirectly by the form EDP_ADP via the Scheduler (ESC) subsystem. It allows archive of data held in tables edb_smoothing_parameters and edb_daily_profile_coefficients.

It also deletes (not archives) all records in edb_data_files and edb_report_files pertaining to control report and exception report files,

where the files were created more than a certain number of days before the current date. The number of days for which these database records for control reports and exception reports are kept are given by the values held in the edb_ref_values table under the 'ARCH' domain

The data to be archived to the tape is written in a report format ready for archive to the tape. The report is placed in the Archive Store directory prior to transfer of the report to the tape storage and deletion of data from the database.

In order to maintain the database integrity tables edb_smoothing_parameters, edb_daily_profile_coefficients and edb_data_files will be locked for update during the execution of the procedure.

The name of the procedure and a date specified by the user via the form EAR_ADP are passed to the Scheduler (ESC). The Scheduler in turn will queue the execution of the procedure and pass the job number edb_jobs.job_number to the procedure. The environmental variable "TAPE_DRIVE" will be read by the procedure in order to establish the physical device name for the tape drive.

The procedure will then use the date to produce report of the Daily Profile Coefficients and the Smoothing Parameters. It writes the Oracle row_id of the rows to be deleted to temporary tables as it produces the report. Once the report have been produced, it will be written to the tape in the tape drive. The report will have a name containing the Settlement Date for which it is produced. The layout of the report is given in sections 'REPORT EAR_ADP_RPT Specifications'.

Given the potential volume of data to be archived, the transaction will not be possible in one commit unit. Temporary tables will be used to store the row_id of the data to be deleted from the above tables. The assumption has been made here that the temporary tables are created by the process and dropped on completion of the procedure. During the implementation it may be necessary to implement permanent temporary storage tables for performance purposes.

Read Settlement Date from the edb_jobs using the job_number passed in.

Lock the tables edb_smoothing_parameters, edb_daily_profile_coefficients. and edb_data_files for update.

Write the row_id of the rows to be archived from the above tables and the modifications to the edb_data_files, to temporary tables, write the report for all the Daily Profile Coefficients and Smoothing Parameters for that Settlement Date.

A maximum of three attempts will be made to write to the tape in the tape drive. The report file(s) will be written to the tape in Unix CPIO format.

Upon successful transfer of the report file to the tape, the report file will be deleted from the Archive Store directory. All the data in tables edb_smoothing_parameters, that represents superseded smoothing parameters and edb_daily_profile_coefficients are deleted based on the

primary key row_id's of the rows to be deleted in the temporary tables. The edb_data_files.file_status for all the edb_data_files relating to the data archived will be set to 'A'. The temporary tables containing the data to be archived are dropped and the tables involved in the transaction are unlocked.

If a failure is encountered during any step of execution prior to committing of the deletions from the tables, edb_smoothing_parameters and edb_daily_profile_coefficients, the temporary tables will be dropped and the report deleted.

The following considerations are made with respect to recovery:

- The process can be divided into two sections - Writing out (to tape and to temporary tables) and Deleting (separate transactions for Daily Profile Coefficients)
- One transaction should cover Writing out. If the task fails during this section, the transaction is rolled back and can be rerun (automatically by ESC). The task will check for this status, at the start of each run. If it is found, the temporary tables will be cleared out and the normal function carried out.
- If the task fails after Writing out, rows of Daily Profile Coefficients may have been deleted and committed, during Deleting. The task will check for this status, at the start of each run. If it is found, no Writing out will be done and the outstanding Daily Profile Coefficients will be deleted.

The deletion of edb_data_files and edb_report_files records pertaining to control reports and exception reports is done after completion of the archive processing.

10.5.2 PROCEDURE EAR_RAD Specification

This procedure is initiated indirectly by the form EDP_RAD via the Scheduler (ESC) subsystem. It allows archived reports of edb_smoothing_parameters and edb_daily_profile_coefficients to be restored to the Reports Store directory.

The edb_jobs table is read using the value of edb_jobs.job_number to find the settlement date for which reports of Daily Profile Coefficients and Smoothing Parameters are required. The tape drive device name is read by the procedure from the environmental variable "TAPE_DRIVE".

The edb_data_files table is read for Settlement Date matching the value specified by the user on the form EDP_RAD and having the status edb_data_files.file_status = 'A', the report file on the tape with names containing the Settlement Date will be restored to the Reports Store directory.

Maximum of three attempts will be made to read the tape in the tape drive.

10.5.3 REPORT EAR_ADP_RPT Specification

Report name: Report on Archived Data

This report is generated by the EAR_ADP procedure.

Run Time: 06/06/1997 14:08 Organisation: An Electricity Company

Report on Archived Data

User: SYSMAN

Settlement Date: 10/01/1997

Smoothing Parameter: 1.100

Effective Date for Smoothing Parameter: 01/01/1997

GSP Group	Profile Class	Standard Settlement Configuration	Time Pattern Regime	Run Number	Daily Profile Coefficient Values
G1	1	SSC1	TPR01	1048	0.0552881620406
G1	1	SSC1	TPR02	1048	0.0246933261621
G1	1	SSC1	TPR03	1048	0.0294955663506
G1	1	SSC1	TPR04	1048	0.0365156934273
G1	1	SSC2	TPR01	1048	0.0373782461367
G1	1	SSC2	TPR02	1048	0.0023440533369
G1	1	SSC2	TPR03	1048	0.0216089400461
G2	1	SSC1	TPR01	1048	0.0554688705699
G2	1	SSC1	TPR02	1048	0.0254524871113
G2	1	SSC1	TPR03	1048	0.0768804979436
G2	1	SSC1	TPR04	1048	0.0443052128890
G2	1	SSC2	TPR01	1048	0.0267931242005
G2	1	SSC2	TPR02	1048	0.0367471964805
G2	1	SSC2	TPR03	1048	0.0061029201790
G2	1	SSC2	TPR04	1048	0.0812344753575
G2	1	SSC3	TPR01	1048	0.0379311625874

Page: 1

Run Time: 06/06/1997 14:08 Organisation: An Electricity Company

Report on Archived Data

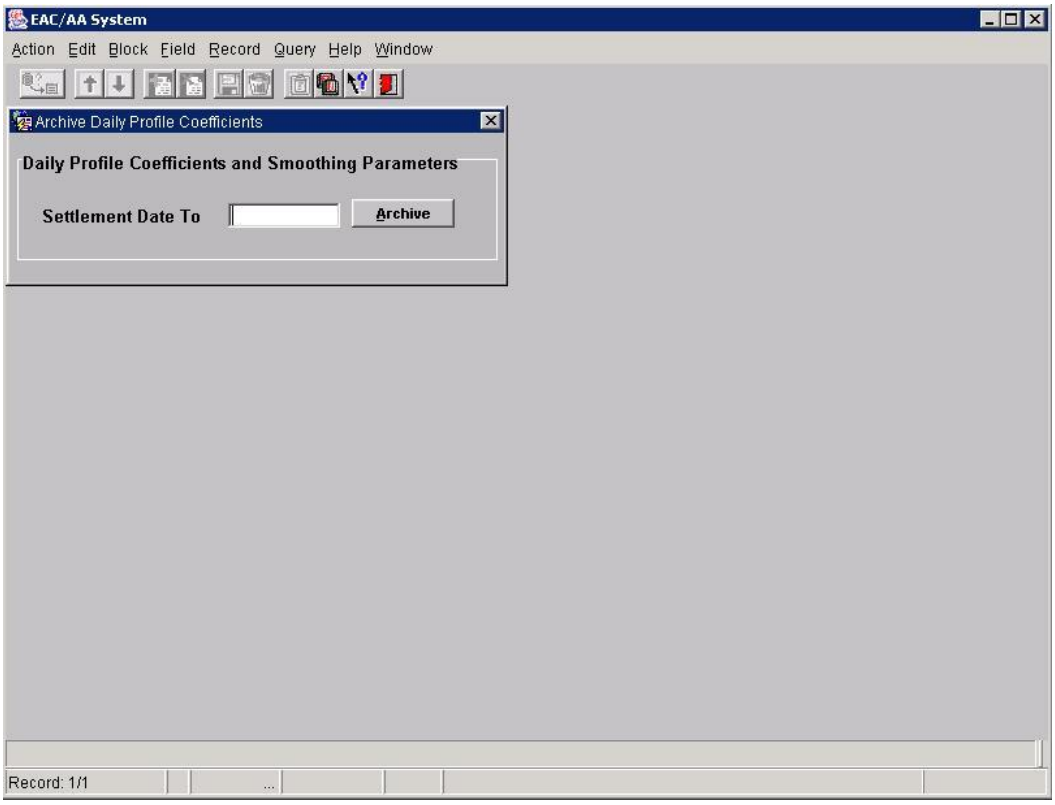
End of Report

Page: 2

10.5.4 FORM EAR_ADP Specification

10.5.4.1 Screen layout

The form EAR_ADP is activated from the Archive Data (EAR) subsystem menu item.



10.5.4.2 Screen behaviour

The form EAR_ADP allows the EAC/AA users to select a settlement date to which archive all the Daily Profile Coefficient and Smoothing Parameters. The procedure EAR_ADP will be initiated on the Server by the form via the Scheduler (ESC) subsystem to archive the data to a tape.

Form Action On	**Form Response**
Selection of Form	Display the three blocks of the form, place the cursor on the only user enterable field.
Enter Date	Allow user to enter a date to start the archive process.
Click On Archive Button	Validate the date format, establish Daily Profile Coefficients exist for the date entered, ask the user to put in the tape in the tape drive. Trigger a background process on the Server by calling a procedure to invoke the Scheduler (ESC) subsystem by loading a row in edb_jobs table.
Clicking on Function Keys Button	Display mapping of logical functions to physical keys.
Clicking on Help Key Button	Invokes EAC/AA System help.
Clicking on Exit Key Button	Exit form.

10.5.4.3 Description

This form allow EAC/AA users to select a date and initiate a background process on the Server to archive all the Daily Profile Coefficients and Smoothing Parameters up to that date.

It contains three blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Archive Date Block, this block contains only one field, in which a date could be entered.
- Control Block, this block contains the button responsible for initiating the background processes to archive the data.

The EAC/AA users belonging to the following user role will be able to access this form:

- EAC/AA System Manager

10.5.4.4 Form Structure

Field Name	**Description**
Block: CONTROL	Block contains one button to initiate a background process on the Server to archive the Daily Profile Coefficients and Smoothing Parameters.
Button ARCHIVE	Button to trigger the background process on the Server for the entered date. The triggering of the background process is achieved by updating the edb_jobs table.. The data passed to the Scheduler (ESC) is outlined in Subsystem processing section.
Block: ARCHIVE_DATE	Block contains the only field on the form, the cursor is placed on this filed when the form is initiated.
Field ARCHIVE_DATE	This field is a date field and the user will be allowed to enter a date, in the format 'DD/MM/YYYY'.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.

10.5.4.5 Action on Form Load

Display the three blocks of the form, place the cursor on the only user enterable field.

10.5.4.6 Action on Query

Not Allowed.

10.5.4.7 Action on Update

Not Allowed.

10.5.4.8 Action on Insert

Not Allowed.

10.5.4.9 Action on Delete

Not Allowed.

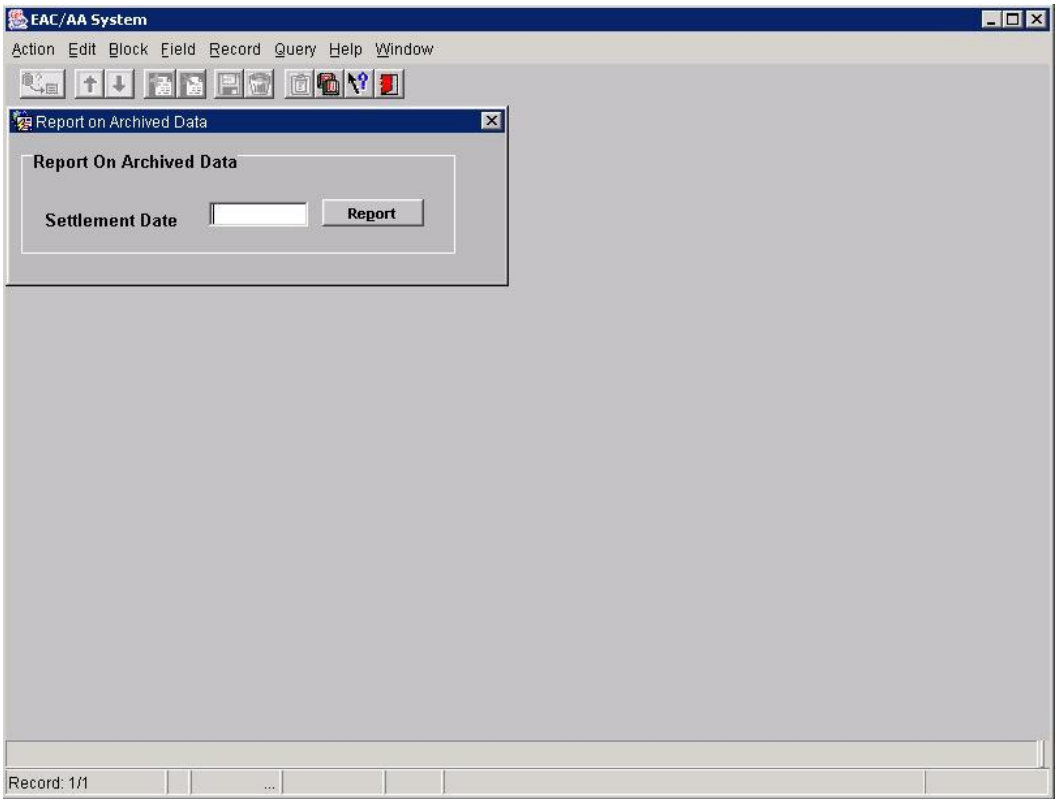
10.5.4.10 Action on Button ARCHIVE

Trigger the background process on the Server for the entered date; the date entered is checked against edb_daily_profile_coefficients.settlement_date to establish that Daily Profile Coefficients prior to that date are present on the system. If no valid records are found, a standard alert will be displayed asking the user to enter another date . If valid records are found a standard alert is displayed asking the user to insert the tape in the tape drive. If the date entered is less than two years prior to the a latest settlement date a standard alert is displayed, allowing the user either to continue or cancel the operation. If cancelled the user will be returned to the date field to enter another date, otherwise the edb_jobs table is updated and the archiving process is effectively scheduled.

10.5.5 FORM EAR_RAD Specification

10.5.5.1 Screen layout

The form EAR_RAD is activated from the Archive Data (EAR) subsystem menu item.



10.5.5.2 Screen behaviour

The form EAR_RAD allows the EAC/AA users to enter a settlement date for which report(s) of the archived Smoothing Parameters and Daily Profile Coefficients will be restored on the Server. The procedure EAR_RAD is initiated on the Server by the form via the Scheduler (ESC) subsystem to restore the necessary report(s) from the tape storage.

Form Action On	Form Response
Selection of form	Display the three blocks of the form, place the cursor on the only user enterable field.
Enter Date	Allow user to enter a date for which the report is required.
Click On Report Button	Validate the date format, establish if any data files have been archived for the specified date, ask the user to put in the tape in the tape drive. Invoke the Scheduler (ESC) subsystem by updating the edb_jobs table.
Clicking on Function Keys Button	Display mapping of logical functions to physical keys.
Clicking on Help Key Button	Invokes EAC/AA System help.
Clicking on Exit Key Button	Exit form.

10.5.5.3 Description

This form allow EAC/AA users to enter a date and initiate a background procedure on the Server to restore report(s) of the archived Daily Profile Coefficients and Smoothing Parameters.

It contains three blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Control Block, this block contains the button responsible for initiating the background procedure to restore the report(s).
- Report Date Block, this block contains only one field, in which a date could be entered.

The EAC/AA users belonging to the following user role will be able to access this form:

- EAC/AA System Manager

10.5.5.4 Form Structure

Field Name	**Description**
Block: CONTROL	Block contains one button to initiate the procedure EAR_RAD on the Server to restore the report(s) of the archived Daily Profile Coefficients and Smoothing Parameters.
Button REPORT	Button to trigger the procedure EAR_RAD on the Server for the selected Date. The triggering of the background process is achieved by updating edb_jobs to pass the necessary information to the Scheduler (ESC) subsystem. The data passed to the Scheduler (ESC) as outlined in section Subsystem processing section.
Block: REPORT_DATE	Block contains the only field, the cursor is placed on this filed when the form is initiated.
Field REPORT_DATE	This field is a date field and the user will be allowed to enter a date, in the format 'DD/MM/YYYY'.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.

10.5.5.5 Action on Form Load

Display the three blocks of the form, place the cursor on the top row of the first column.

10.5.5.6 Action on Query

Not Allowed.

10.5.5.7 Action on Update

Not Allowed.

10.5.5.8 Action on Insert

Not Allowed.

10.5.5.9 Action on Delete

Not Allowed.

10.5.5.10 Action on Button REPORT

Trigger the procedure EAR_RAD on the Server for the selected Date. The triggering of the background process is achieved updating edb_jobs to pass the necessary information to the Scheduler (ESC) subsystem. The data passed to the Scheduler (ESC) as outlined in section Subsystem processing section.

The date entered is checked against edb_data_files.settlement_date to establish if there are any records with edb_data_files.file_content_code of Daily Profile Coefficients and edb_data_files.file_status of 'A'. If no valid records are found, a standard alert is displayed asking the user to enter another date. If valid records are found a standard alert is displayed asking the user to insert the tape in the tape drive.

11 Technical Specification - Subsystem ERP Specification

11.1 Introduction

This subsystem comprises the following elements:

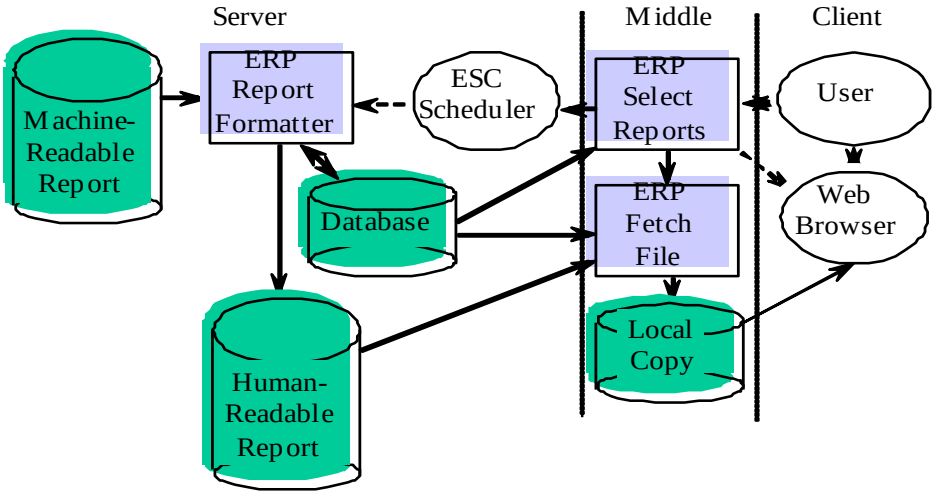
- a process which translates machine-readable reports to a human-readable format
- an Oracle Form from which a human-readable report can be selected for viewing or printing
- a set of PL/SQL functions for accessing files on the server using UTL_FILE package
- a set of library routines to write files on the application server using TEXT_IO package

The combination of these last two components is shown in the next section as the "ERP Fetch File" process.

The subsystem uses four database tables that contain the configuration data used to control the formatting process.

11.2 Subsystem context

The following diagram shows the context for this subsystem:



11.2.1 Interface with ESC subsystem

ERP Select Reports creates a new edb_jobs record in the database and this record is read the next time that the ESC Scheduler polls the table. The flow shown from the ESC Scheduler to the ERP Report Formatter is the start process control flow.

When submitting a formatting request, the file_id of the machine readable report to be formatted is passed as an argument.

11.2.2 Machine-Readable Report

This interface is the reading of the machine-readable report file.

11.2.3 Human-Readable Report

This interface is the writing and reading of the human-readable version of the report. Each line of the report is written to the output file with a linefeed terminator.

11.2.4 Local Copy

This is the copy of the human-readable report on the application server. The interfaces shown are the writing of this file by Oracle TEXT_IO and the reading of it by the web browser for the user to view.

11.2.5 Interface with User

This is the user's interaction with the Oracle Form used to select a report for viewing.

For clarity the user's interaction with the web browser (as the user views a report) is also shown.

Alternatively, the file may be queued for printing (although this is not shown on the diagram).

11.2.6 Interface with Web Browser

The Oracle Form ERP_select_reports (on request) invokes the web browser passing the full pathname for the formatted file as an argument.

11.2.7 Special Considerations

11.2.7.1 Recovery

If the Report Formatter process fails whilst creating a human-readable report, there may be no indication in the human-readable file that it is incomplete. However, until the file has been finished, the file status will not be set to "completed" and hence the user will not be able to view or print an incomplete report.

Any such files may be manually identified in edb_data_files as having:

- file_type = *human-readable report*,
- status = *new*, and
- creation_time significantly before current time

11.2.7.2 Security

Access to formatted report files on the server is made using the UTL_FILE package. The directories from which this package can access files can be limited using the Oracle parameter UTL_FILE_DIR. Access to UTL_FILE package can be limited to the ERP subsystem, thus ensuring access to the underlying report files is only available to suitably authorised users.

11.2.7.3 Application Server file naming and maintenance

Using the ERP subsystem, files may be copied to a (configurable) directory on the application server. The file name used on the application server will

be based on the filename used on the server. The actual file name is not significant:

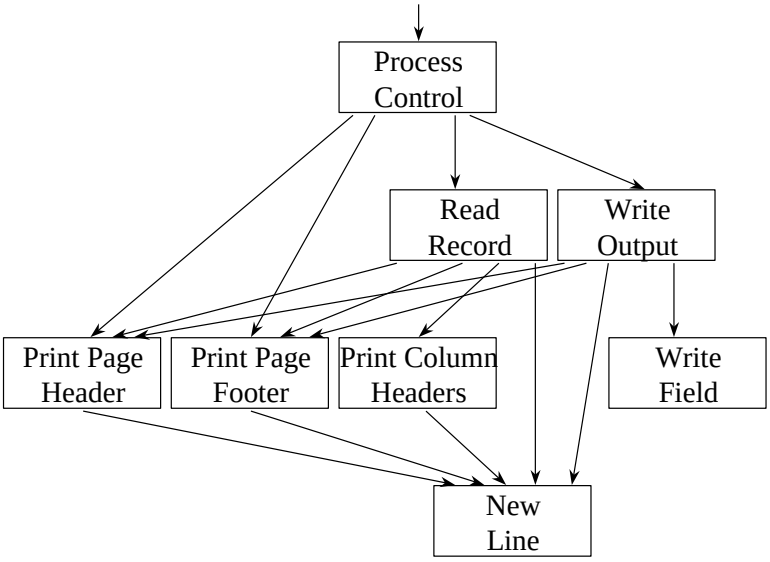
- Printing - the user does not need to be aware of the file name as print submission takes place automatically.
- Viewing - if the user requires subsequent access to the file, they can save it with a user chosen name using "Save As" from the web browser.

Periodic deletion of the files copied to the application server (ie: those in the configured directory) should be carried out - details will be given in the System Management Guide.

11.3 Subsystem processing

11.3.1 Report Formatter process

The following diagram shows the interfaces between the procedures that make up the ERP_report_formatter process:



11.4 Data usage

The following data is used by this subsystem.

11.4.1 System Data

11.4.1.1 Database

The subsystem reads the four database tables which contain the report configuration:

- edb_report_type
- edb_record_info
- edb_field_info

- edb_field_headers

The subsystem also accesses the filing system tables:

- edb_data_files (read, write)
- edb_report_files (read, write)
- edb_jobs (read)

11.4.1.2 Files

The subsystem reads the machine-readable report files and writes the human-readable formatted report files.

It also writes files copies of the formatted report files to a specified directory on the application server.

11.4.2 Local data

The following variables are available globally within the subsystem.

11.4.2.1 Page status data

This includes the following general counters:

- Page Number (initialised to zero)
- Line Number (initialised to zero)

11.4.2.2 Level Array

Holds the record type being processed at each level of report nesting.

Initialised to null strings.

11.4.2.3 Current Column Headers

The values to be printed as column headers are held in a local data store. Each time the record type changes, the database is checked to determine if the values of the headers should be changed.

Initialised to null strings.

This actually comprises an array of strings (possibly null), for each line of the header plus an associated underlining string underline, eg:

```
Header[0]          = "Meter      Reading"
Header[1]          = "Number     Value"
Underline String   = "========== ==========="
```

11.4.2.4 Page Header and Footer

The page header will comprise:

- report title, read from edb_report_type.report_name
- organisation name, read from edb_market_participants.name where participant_id is the same as the participant_id in edb_system_configuration
- report date and time, file_creation time of machine readable source

These fields will be left-aligned, centred and right-aligned respectively for the report's page width.

The page footer will comprise:

- page number

which will be centred on the page.

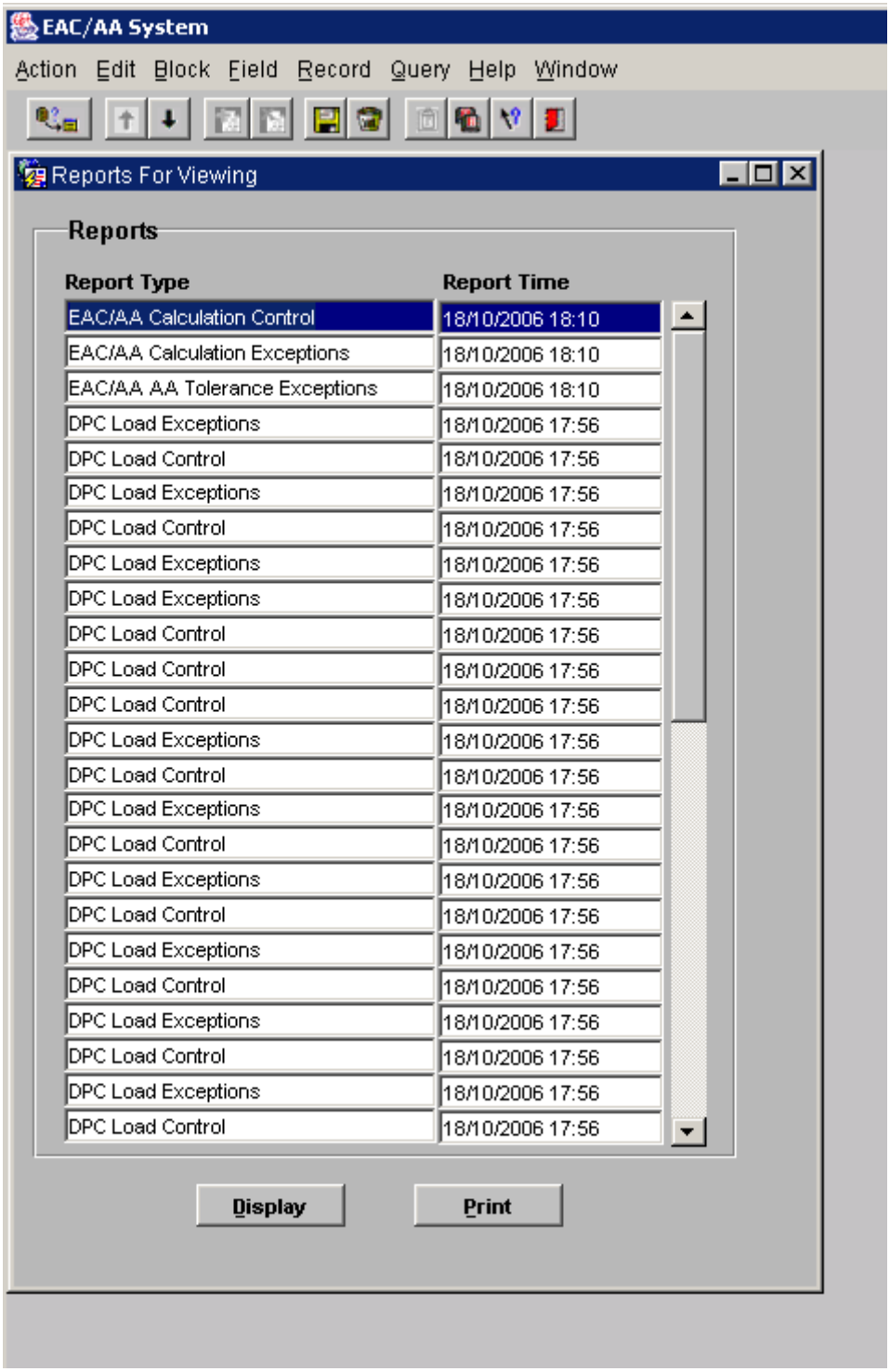
11.5 Procedure details

The subsystem comprises a PL/SQL functions, an Oracle Form and a number of Pro*C procedures. These are described in the following sections.

11.5.1 Select Reports (Form)

11.5.1.1 Screen layout

The form EACAAERP is activated from the Reports (ERP) subsystem menu item.



11.5.1.2 Screen behaviour

The form displays a list of reports that have completed on the server. These are displayed in reverse order of creation - ie: the most recently created reports are displayed at the top of the list. The user can restrict the list by entering criteria for Report Type and/or Report Time.

The user can move through the list but cannot change the data displayed. The row on which the cursor is placed is treated as the currently selected report when any of the buttons on the Form are pressed.

With a report selected, the user can press a button to:

- display the report - triggering the viewer application to be started for the specified file
- print the report - sending the selected file to the default printer

If the report was originally created as a machine-readable report and has not previously been formatted into human-readable form, the report will first be formatted.

11.5.1.3 Description

This form is provided to satisfy the requirements to display and print certain reports. It provides a mechanism for selecting one of the completed reports on the server and obtaining a copy of that report on the application server for viewing via the web browser or printing.

Note that deletion of the created files on the client is considered a separate, user operation - see the Systems Management Guide.

11.5.1.4 Form structure

Field Name	**Description**
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Block: REPORTS	Block contains a table of all reports available for viewing
Field Report Type	edb_report_type.report_name
Field Report Time	edb_data_files.file_creation_date
Button Display	Triggers the display action described below
Button Print	Triggers the print action described below

11.5.1.5 Action on Form Query

Displays a list of all reports which match the query criteria, eg:

```
SELECT    t.report_name, f.file_creation_time,
          f.file_seq_num, t.page_width, r.gen_file_seq_num
FROM      edb_report_files r, edb_report_type t,
          edb_data_files d
WHERE     t.report_name matches any criteria specified
AND       f.creation_time matches any criteria specified
AND       d.file_seq_num = r.file_seq_num
AND       r.report_type = t.file_type
AND       d.status = completed
ORDER BY  d.creation_time DESC
```

Note that only file types which are included in edb_report_type will be included in the list of reports. (See section 4.3.14). Furthermore, only reports that have status ‘completed’ will be included.

Implementation of this form will be simplified by defining a database view for the underlying query (ie: without the criteria specified).

11.5.1.6 Action on Button Display

```
IF selected row is for a report which is originally produced
in machine-readable format (page_width>0 in edb_report_type)
     IF human-readable report has not been generated yet
     (gen_file_seq_num is null in edb_report_files)
          CALL ERP.FORMAT_REPORT to format the report
     END IF
END IF
CALL ERP.DISPLAY_REPORT for human-readable report to bring
the report up for display
```

11.5.1.7 Action on Button Print

```
IF selected row is for a report which is originally produced
in machine-readable format (page_width>0 in edb_report_type)
     IF human-readable report has not been generated yet
     (gen_file_seq_num is null in edb_report_files)
          CALL ERP.FORMAT_REPORT to format the report
     END IF
END IF
CALL ERP.PRINT_REPORT to queue the report to the local
default printer
```

11.5.2 Format Report (PL/SQL)

```
Procedure Name:     ERP.FORMAT_REPORT
Arguments:          Machine-Readable File Seq Num (IN)
Return:             Human-Readable File Seq Num
```

This is a procedure to request formatting of a report.

```
Create a record in edb_jobs to submit a ERP_Report_Formatter
process for the specified source file
wait for job to complete
SELECT    r.gen_file_seq_num
FROM      edb_report_file r
WHERE     r.file_seq_num = Input File Seq Num
Return human-readable file seq num = r.gen_file_seq_num
```

11.5.3 Display Report (PL/SQL)

```
Procedure Name:     ERP.DISPLAY_REPORT
Arguments:          File Seq Num (IN)
Return:             None
```

This is a procedure to display a human-readable report. This is used within the Display Reports form as the action for the “Display” button. It may also be used elsewhere if required.

```
CALL ERP.FETCH_REPORT to get report to application server
machine
Get target directory from configuration
Get filename from edb_data_files
Invoke web browser to display application server file
```

11.5.4 Print Report (PL/SQL)

```
Procedure Name:     ERP.PRINT_REPORT
Arguments:          File Seq Num (IN)
Return:             None
```

This is a procedure to print a human-readable report. This is used within the Display Reports form as the action for the “Print” button. It may also be used elsewhere if required.

```
CALL ERP.FETCH_REPORT to get report to application server
machine
Get target directory from configuration
Get filename from edb_data_files
Submit the local file to the windows default print queue
```

When submitting to the printer it may be necessary to set different modes for portrait and landscape reports. In this case, the size of the report can be determined by the following query:

```
SELECT    t.page_width, t.page_length
FROM      edb_report_type t, edb_report_files f
WHERE     f.file_id = File Seq Num
AND       t.report_type = f.file_type
```

11.5.5 Fetch Report (PL/SQL)

```
Procedure Name:     ERP.FETCH_REPORT
Arguments:          File Seq Num (IN)
Return:             None
```

This is a procedure to fetch a file to the application server. Any existing file with the same name in the target directory will be overwritten. The application server directory to be used is determined from a client configuration constant.

The procedure is actually a combination of stored PL/SQL procedures using the UTL_FILE package to access server files and forms TEXT_IO code to write the data on the application server.

```
Determine the server file name from edb_data_files table
Open the file on the server (UTL_FILE)
Determine application server directory from configuration
value
Create file on application server (TEXT_IO)
FOR each line in the file
     Read line from server (UTL_FILE)
     Write line on application server (TEXT_IO)
END FOR
Close server file (UTL_FILE)
```

This routine is used when displaying files to the client machine.

Note that deletion of the report file from the application server is not done by this routine. This is a system management task.

11.5.6 Process Control (Pro*C)

```
Procedure Name:     ERP_process_control
Arguments:          argc (IN)
                    argv (IN) comprising:
                         Input File Seq Num
Return:             None
```

Controls the execution of the ERP_Report_Formatter process. This is the process that creates a human-readable file from the specified machine-readable input file.

```
Initialise local data in process memory
Read System Parameters into process memory

Read the page information for report from database:
```

```
SELECT    r.report_name, r.page_width, r.page_length
FROM      edb_report_type r, edb_report_files f
WHERE     r.file_type = f.report_type
AND       f.file_seq_num = input file seq num

open input file for reading
create output file for writing
Insert gen_file_seq_num in edb_report_files
Insert edb_data_files record for output file
CALL ERP Print Page Header
WHILE not end of input file
     CALL ERP Read Record
     CALL ERP Write Output
END WHILE
IF Line Number > 0
     CALL ERP Print Page Footer
END IF
close output file
close input file
update file to set status of output file to completed in
edb_data_files
End Process
```

11.5.7 Read Record

```
Procedure Name:     ERP_read_record
Arguments:          Input File Type (IN)
                    Input File Context (IN)
                    Output file handle (IN)
                    Record Type (OUT)
Return:             Error Status
```

Gets a record from the file and carries out the initial record processing, including moving to a new page if necessary.

If no entry is found in edb_record_info for the record type read from the input file, that record is skipped. This approach allows any file header and footer records to be skipped automatically.

Note that the pseudo-code database accesses are only indicative of the data required. The formatting data for a complete report may be pre-fetched into memory structures by Process Control to reduce the number of database accesses actually executed.

```
read next record for input file
If record type is same as lowest level
     Do Nothing
ELSE IF record type is same as higher entry level array
     Clear any lower level entries in level array
     CALL ERP New Line
ELSE
     SELECT    parent_type
     FROM      edb_record_info
     WHERE     file_type = input file type
     AND       record_type = input record type

     Add Record Type at appropriate point in level array
     (based on value of parent type)

     Clear column headers

     SELECT    i.field_width, h.header text
     FROM      edb_field_info i, edb_field_headers h
     WHERE     record_type = input record type
```

```
        AND       h.file_type = i.file_type
        AND       h.record_type = i.record_type
        AND       h.field_number = i.field_number
        ORDER BY  i.field_number, h.sequence

        FOR each field
             Build Column headers by appending each of the
             header text plus a leading space
             IF header does not reach full width
                  Add appropriate number of trailing spaces
             END IF
             Also build appropriate underlines string
        END FOR
        Remove trailing blanks from column headers
        (so null string implies no header!)

        IF not enough lines left on page for new header/data
             CALL ERP Print Page Footer
             CALL ERP Print Page Header
        ELSE
             CALL ERP Print Column Headers
        END IF
   END FOR
```

11.5.8 Write Output

```
Procedure Name:    ERP_write_output
Arguments:         Input File Context (IN)
                   Input File Type (IN)
                   Input Record Type (IN)
                   Output file handle (IN)
Return:            Error Status
```

Process each of the fields from the record.

Note that the pseudo-code database accesses are only indicative of the data required. The formatting data for a complete report may be pre-fetched into memory structures by Process Control to reduce the number of database accesses actually executed.

```
SELECT    field_number, row_head_width, field_type,
          print_width, new_line_after
FROM      edb_field_info
WHERE     file_type = Input File Type
AND       record_type = Input Record Type
ORDER BY  field_number

FOR each field
     IF no lines left on page
          CALL ERP Print Page Footer
          CALL ERP Print Page Header
     END IF
     IF row header
          Read header text from edb_field_headers
          CALL ERP Write Field for header text
     END IF
     Read field
     CALL ERP Write Field
     IF new line after
          CALL ERP New Line
     END IF
END FOR
```

11.5.9 Write Field

```
Procedure Name:    ERP_write_field
```

```
Arguments:          Output file handle (IN)
                    Field Type (IN)
                    Field Pointer (IN)
                    Print Width (IN)
Return:             Error Status
```

Writes a field to the output file padding it appropriately to print width. Note that the type object referenced by Field Pointer will depend on Field Type.

```
SELECT CASE field type
CASE Numeric field
     Write any padding required
     Write input field value
CASE Date field
     Reformat date as DD/MM/YYYY
     Write reformatted field
     Write any padding required
CASE time field
     Reformat time as HH:MM:SS
     Write reformatted field
     Write any padding required
CASE date/time field
     Reformat date/time as DD/MM/YYYY HH:MM
     Write reformatted field
     Write any padding required
CASE Other
     Write input field value
     Write any padding required
END SELECT
```

11.5.10 Print Page Header

```
Procedure Name:     ERP_print_page_header
Arguments:          Output file handle (IN)
                    Report Date/Time (IN)
Return:             Error Status
```

Write a page header to output file.

```
Increment Page Number
Write page header to file
CALL ERP New Line
CALL ERP Print Column Headers
```

11.5.11 Print Page Footer

```
Procedure Name:     ERP_print_page_footer
Arguments:          Output file handle (IN)
                    Page Number (IN)
Return:             Error Status
```

Write a page footer to output file.

```
WHILE Line Number < max (data) lines
     CALL ERP New Line
END WHILE
Write standard page footer to file
Write Form Throw character to file
Set Line Number to zero
```

11.5.12 Print Column Headers

```
Procedure Name:     ERP_column_headers
Arguments:          Output file handle (IN)
Return:             Error Status
```

Writes the current column headers to output file.

```
CALL ERP New Line
WHILE Column Header Line is not blank
     Write Column Header Line to output file
     CALL ERP New Line
END WHILE
IF at least one column header line
     Write Column Header Separator Line to file
     CALL ERP New Line
     CALL ERP New Line
END IF
```

11.5.13 New Line

```
Procedure Name:    ERP_new_line
Arguments:         Output file handle (IN)
Return:            Error Status
```

Complete a line in the output file.

```
Increment Line Number
Write Line Feed Character
```

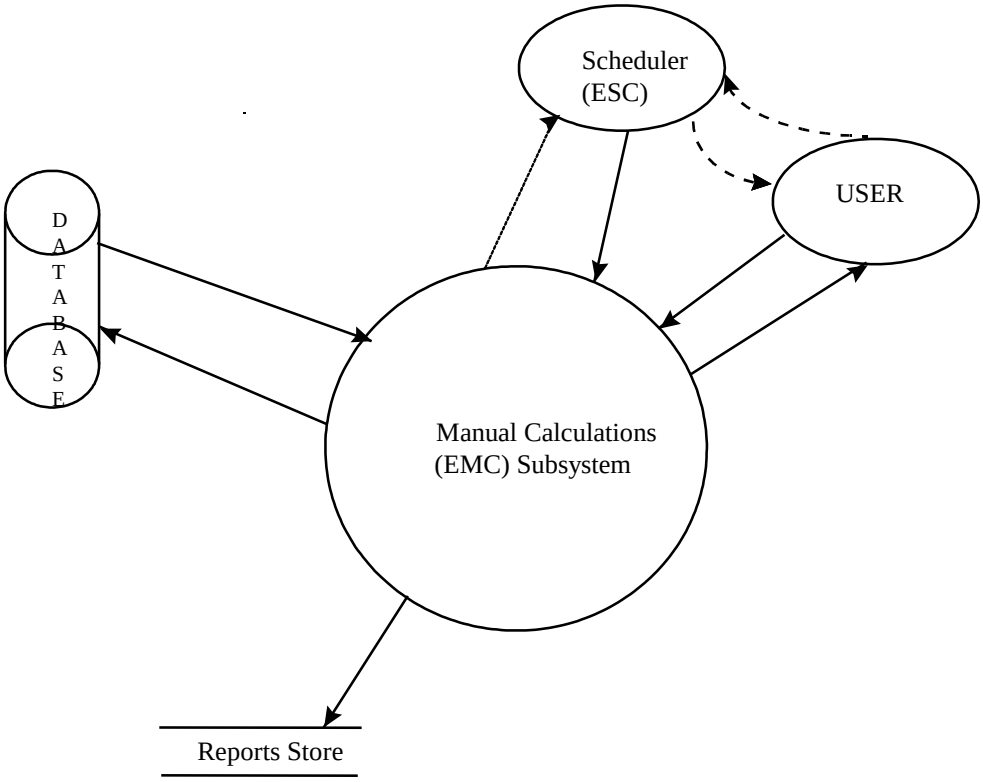
12 Technical Specification - Subsystem EMC Specification

12.1 Introduction

This subsystem provides an Oracle form which is used to perform an Ad Hoc Deemed Meter Reading Calculation. The input data for the calculation is entered on the form, and the results of the calculation are displayed on the form. The calculation is performed by a batch process initiated via the scheduler.

There is also an Oracle form which is used to initiate an audit report which contains details of past Ad-Hoc Deemed Meter Reading Calculations. This audit report is a batch process initiated via the scheduler.

12.2 Subsystem Context



12.2.1 User Interface

The communication between the EAC/AA user and the Manual Calculations (EMC) subsystem is achieved via the forms EMC_IDM and EMC_IAU. These forms initiate the EMC background processes by sending the details of the background procedures to the Scheduler (ESC) via the database table edb_jobs. This is achieved by populating the details of jobs to be executed in edb_jobs table. The Scheduler (ESC) will then Schedule the procedure for execution in the background. The EMC_IDM form displays the results of the calculation which the user initiated, by querying the database.

12.2.2 Scheduler (ESC) Interface

The name of the batch procedure within the subsystem and the parameters necessary for the execution are sent to the Scheduler subsystem (ESC) by the user interface. This is achieved by calling a procedure at the User Interface to populate the edb_jobs table. The confirmation of this is then sent back to user by returning success when calling the procedure. The details of the data passed from the user interface to the back end procedures are details in the subsystem processing section.

Once the batch process is successfully queued, the initiation of the batch process is handled by the Scheduler (ESC) subsystem.

12.2.3 Database Interface

There are two categories of database interactions within this subsystem.

- Online interactions
- Offline interactions

The Online database interactions are handled by the forms. The details of the database interactions by this form are included in the form specifications.

The Offline database interactions are handled by the batch processes initiated by the Scheduler (ESC). The details of these interactions are included in the relevant procedure sections.

12.2.4 Reports Interface

The reports are produced as a result of the execution of the EMC_AUD process, as detailed in the relevant procedure specifications.

The reports store will be a directory named E_mr_reports. The reports are machine-readable reports, and are available for conversion to human-readable by the ERP subsystem.

12.3 Subsystem Processing

This subsystem provides the functionality associated with performing the Ad Hoc Deemed Meter Reading Calculation. Additionally, it provides the Ad Hoc Deemed Meter Reading Calculation Audit Report.

This subsystem contains the forms EMC_IDM and EMC_IAU. The forms allow the EAC/AA users to initiate the batch processes EMC_DMR and EMD_AUD respectively via the Scheduler Subsystem (ESC) on the server.

The forms and batch processes are described in detail in the sections that follow.

The data passed between the forms and the subsystem batch processes via the Scheduler (ESC) subsystem is as follows:

From	To	Data
FORM EMC_IDM	PROCEDURE EMC_DMR	Transaction

FORM EMC_IAU	PROCEDURE EMC_AUD	Each Report Parameter entered by the user.

12.4 Data Usage

All the data accessed within the subsystem is held on the database. The System Data section provides the cross reference for the components of the subsystem and the tables and their mode of access.

12.4.1 System Data

The details of the tables accessed by this subsystem are as follows:

Form / Procedure	Table	Insert	Modify	Delete	Read
FORM EMC_IDM	edb_daily_profile_coefficients				X
	edb_dmr_calculations	X			X
	edb_dmr_calc_profile_classes	X			X
	edb_dmr_calc_tprs	X			X
	edb_dmr_calc_errors				X
	edb_jobs	X			
PROCEDURE EMC_DMR	edb_daily_profile_coefficients				X
	edb_dmr_calculations		X		X
	edb_dmr_calc_profile_classes				X
	edb_dmr_calc_tprs		X		X
	edb_dmr_calc_errors	X			
	edb_tolerance_values				X
FORM EMC_IAU	edb_dmr_calculations				X
	edb_jobs	X			
PROCEDURE EMC_AUD	edb_dmr_calculations				X
	edb_dmr_calc_profile_classes				X
	edb_dmr_calc_tprs				X
	edb_dmr_calc_errors				X
	edb_data_files	X			
	edb_report_files	X			

12.4.2 Local Data

No local data is held within this subsystem.

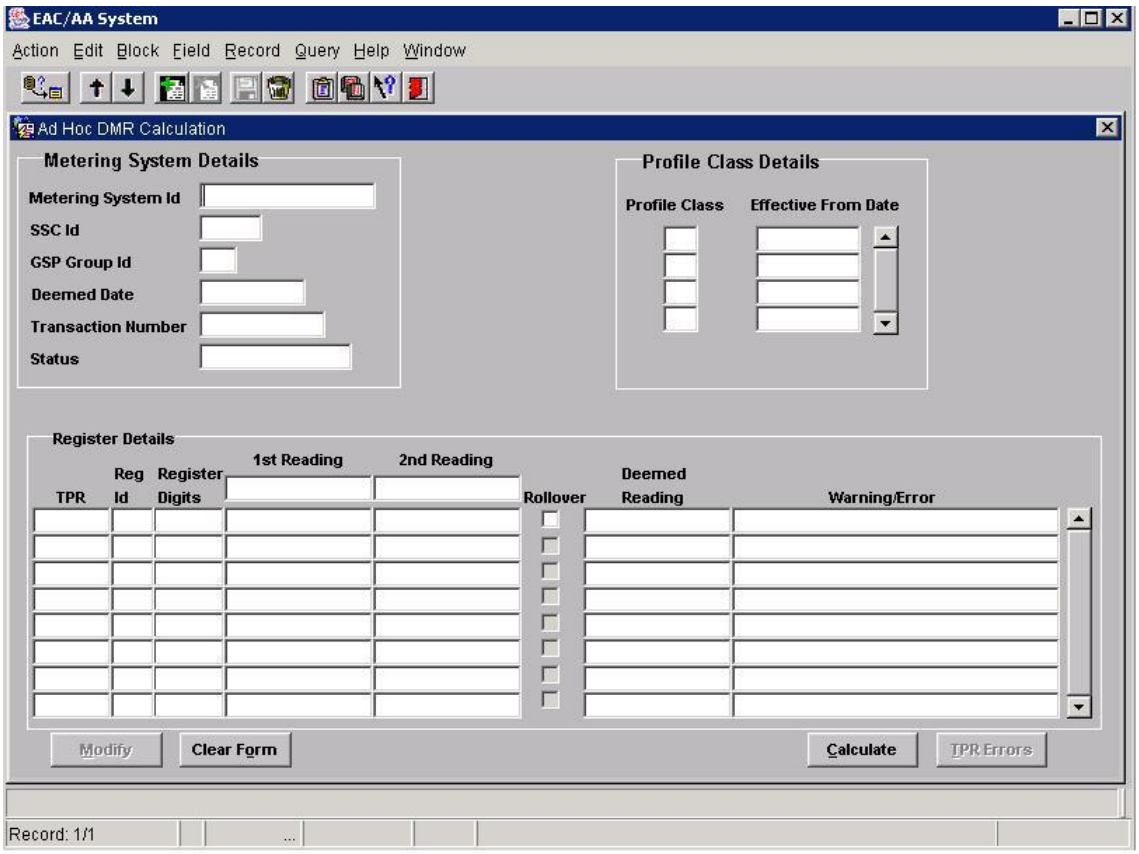
12.5 Procedure Details

This section describes the various components of the Manual Calculations (EMC) subsystem. A description of the procedures within the subsystem is included in this section.

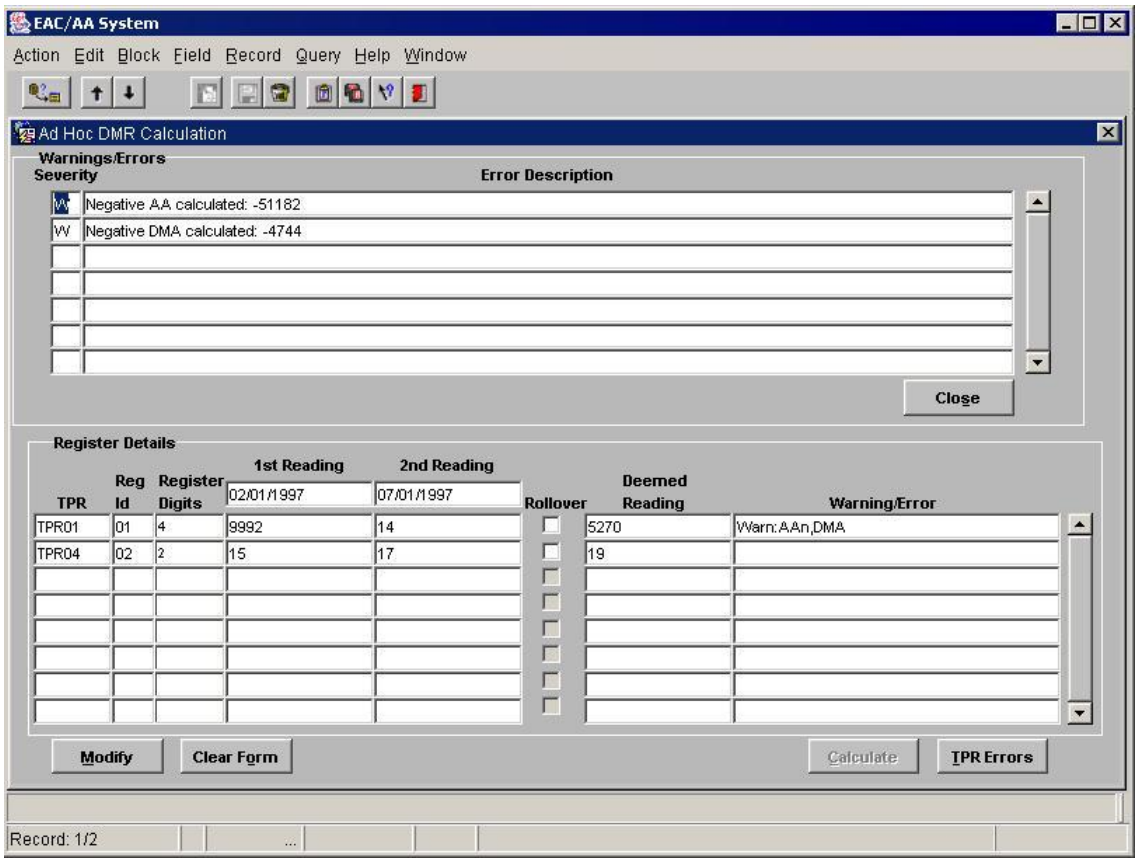
12.5.1 FORM EMC_IDM

12.5.1.1 Screen Layout

The form EMC_IDM is activated from the Ad Hoc DMR Calculation subsystem menu item.



When the user clicks on the TPR Errors button, a second canvas is displayed:



12.5.1.2 Screen Behaviour

The form EMC_IDM allows the EAC/AA users to enter the input data for an Ad Hoc Deemed Meter Reading Calculation, and initiate the calculation.

Form Action On	Form Response
Selection of Form	Display the first five blocks of the form, place the cursor on the Metering System Id column and put the form in insert mode. Set up List of Values for the SSC Id, GSP Group Id and Profile Class fields from all the values that exist in the edb_daily_profile_coefficients table for the most recent Settlement Date for which DPCs have been loaded.
Entering a Query	Allow user to enter the field(s) for query action to take place.
Executing a Query	Execute the query based on what has been entered in the METERING_SYSTEM Block. This will populate all three data input blocks.
Cancelling Query	Cancels the query mode and puts the form in insert mode.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	Validate the current field, and move the cursor to the next field. (The validation done on that field will be the relevant sub-set of the validation defined in section 12.5.1.13, subject to which other fields have been

	entered.) When the SSC Id field has been entered, set up a list of values for the TPR Id field, from all the values that exist in the edb_daily_profile_coefficients table for that SSC Id and the Deemed Date.
Moving Scroll Bar	Change which records are displayed.
Insert Row	Allow a new row for TPRs to be entered.
Clear Record	Clears the record from the form. If the cursor is in the METERING_SYSTEM block, this clears the entire form.
Clicking on Calculate Button	Submits the calculation, and sets all the data entry fields read only
Clicking on Modify Button	Sets all the data entry fields writeable and clears the results fields, ready for the user to make any edits and submit a new calculation.
Clicking on Clear Form Button	Sets all the data entry fields writeable and clears all fields, ready for the user to enter all the data for a new calculation from scratch
Clicking on TPR Errors button	Display the canvas containing the ERROR_WARNING_DETAIL block for the TPR row where the cursor resides
Clicking on Close button	Go back from the Error/Warning canvas to the main canvas
Clicking on Function Keys Button	Display mapping of logical functions to physical keys.
Clicking on Help Key Button	Invokes EAC/AA System help.
Clicking on Exit Key Button	Exit form.

12.5.1.3 Description

This form allows EAC/AA users to enter the input data for an Ad Hoc Deemed Meter Reading Calculation, and initiate a background process on the Server to perform the calculation.

It contains six blocks:

- Control Block: contains buttons to initiate a calculation and also to clear some or all of the screen for a new calculation.
- Tool Bar Block: contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Metering System Block: contains fields in which the user enters the input data for the calculation that applies at Metering System level. It also contains read only fields for the display of information returned from the calculation.
- Profile Class Block: contains fields in which the user enters input data for the calculation that applies to the Profile Classes to which a metering system may be assigned on different Settlement Dates

- Register Block: contains fields in which the user enters input data for the calculation that applies at register level. It also contains read only fields for the display of information returned from the calculation.
- Error Warning Detail Block : contains details of any errors and warning that were raised during the calculation for one of the rows in the Register block.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor

12.5.1.4 Form Structure

Field Name	**Description**
Block: CONTROL	Block contains the form's buttons.
Button CALCULATE	Button to trigger the background process on the Server to perform the calculation. The triggering of the background process is achieved by calling a procedure to load the procedure and parameter details into the edb_jobs table. The data passed to the Scheduler (ESC) has been specified in section 12.3. When the calculate button is pressed, all the input data fields are set to read only.
Button MODIFY	Button to set all the input data fields to writeable, without altering their contents, and to clear out the fields containing data returned from the calculation. The user can now edit some of all of the input data fields and submit a new calculation. This button can be pressed before the results from the previous calculation are displayed on the form; in this case the result of the previous calculation can be obtained by submitting an audit report from form EMC_IAU.
Button CLEAR FORM	Button to set all the input data fields to writeable, and to clear out all fields. The user can now enter all the details for a new calculation from scratch and submit a new calculation. This button can be pressed before the results from the previous calculation are displayed on the form; in this case the result for the previous calculation can be obtained by submitting an audit report from form EMC_IAU.
Button TPR_ERRORS	Button to Display the canvas containing the ERROR_WARNING_DETAIL block for the TPR row where the cursor resides.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button ENTER_QUERY	Puts the form in "Query Mode" and allows

	data to be entered in the fields of "METERING_SYSTEM" Block.
Button EXECUTE_QUERY	Executes a query based on the field(s) entered: will retrieve the details of previous calculations.
Button NEXT_RECORD	Navigate to the next record in the current block.
Button PREVIOUS_RECORD	Navigate to the previous record in the current block.
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: METERING_SYSTEM	Block contains fields associated with the table edb_dmr_calculations.
Field METERING_SYSTEM_ID	edb_dmr_calculations.metering_system_id
Field SSC_ID	edb_dmr_calculations.std_sett_config_id
Field GSP_GROUP_ID	edb_dmr_calculations.gsp_group_id
Field DEEMED_DATE	edb_dmr_calculations.dmr_date
Field TRANSACTION_NUMBER	edb_dmr_calculations.transaction
Field CALCULATION_STATUS	edb_dmr_calculations.status
Field MR_DATE_1	edb_dmr_calculations.mr_date_1
Field MR_DATE_2	edb_dmr_calculations.mr_date_2
Block: PROFILE_CLASS	Block contains fields associated with the table edb_dmr_calc_profile_classes**.**
Field PROFILE_CLASS	edb_dmr_calc_profile_classes.profile_class_id
Field EFFECTIVE_FROM_DATE	edb_dmr_calc_profile_classes.settlement_from_date
Block: REGISTER	Block contains fields associated with the table edb_dmr_calc_tprs.
Field TPR	edb_dmr_calc_tprs.time_pattern_regime_id
Field REG_ID	edb_dmr_calc_tprs.register_id
Field REGISTER_DIGITS	edb_dmr_calc_tprs.register_digits Once the user has entered the first row in this block, and positioned his cursor in a new row, the value of this field is copied from the first row to this new row, to serve as a default.
Field FIRST_READING	edb_dmr_calc_tprs.meter_reading_1
Field SECOND_READING	edb_dmr_calc_tprs.meter_reading_2

Field ROLLOVER	edb_dmr_calc_tprs.rollover This field is a check-box. It is unchecked when the screen is first displayed. As soon as the user has entered a pair of meter readings where the second reading is less than the first reading, the box becomes checked, and the user must uncheck it if this is a genuine negative advance, not a register rollover.
Field DEEMED_READING	edb_dmr_calc_tprs.dmr
Field WARNING_ERROR	edb_dmr_calc_tprs.short_error
Block: ERROR_WARNING_DETAIL	Block contains fields associated with the table edb_dmr_calc_errors.
Field ERROR_SEVERITY	edb_dmr_calc_tprs.error_severity
Field LONG_ERROR	edb_dmr_calc_tprs.long_error

12.5.1.5 Action on Form Load

Display the first five blocks of the form, place the cursor in the Metering System field, and put the form in insert mode.

12.5.1.6 Action on Button ENTER_QUERY

Put the form in “Query Mode”.

12.5.1.7 Action on Button EXECUTE_QUERY

Execute a query based on the field(s) entered.

12.5.1.8 Action on Update

Not Allowed.

12.5.1.9 Action on Insert

Create records in the edb_dmr_calculations, edb_dmr_calc_profile_classes and edb_dmr_calc_tprs tables.

12.5.1.10 Action on Delete

Not Allowed.

12.5.1.11 Action on Button NEXT_RECORD

If the cursor is in the METERING_SYSTEM block, display the next record returned by the query and update the PROFILE_CLASS and REGISTER blocks accordingly. If the cursor is in the PROFILE_CLASS or REGISTER blocks, move the cursor down to the next record.

12.5.1.12 Action on Button PREVIOUS_RECORD

If the cursor is in the METERING_SYSTEM block, display the previous record returned by the query and update the PROFILE_CLASS and

REGISTER blocks accordingly. If the cursor is in the PROFILE_CLASS or REGISTER blocks, move the cursor down to the previous record.

12.5.1.13 Action on Button CALCULATE

The following validation occurs before the calculation batch process is submitted:

- The Metering System Id must be 13 characters long. Each character must be numeric. The 13th character must be a check digit calculated from the values of the first 12 digits using the industry standard algorithm;
- The SSC Id must exist in the edb_daily_profile_coefficients table for the Settlement Date equal to the Deemed Date;
- The GSP Group Id must exist in the edb_daily_profile_coefficients table for the Settlement Date equal to the Deemed Date;
- The Deemed Date must be in the past. If it is less than 14 days before the current date, a warning message is displayed and the user must choose whether to proceed with the calculation or not;
- The first reading date and second reading date must be entered, and the second reading date must be after the first reading date;
- If the latest of the three dates is more than 730 days after the earliest of the three dates, a warning message is displayed and the user must choose whether to proceed with the calculation or not;
- Reading Date 1 and Reading Date 2 must be dates for which DPC data has been loaded for the GSP Group;
- There must be a least one Profile Class entered;
- For each Profile Class that has been entered, the Effective From Date must have been entered;
- There must be at least one Profile Class entry which has an Effective From Date equal to or earlier than the earlier of the Deemed Date and 1st Reading Date;
- Each Profile Class entry must exist in the edb_daily_profile_coefficients table for the Settlement Date equal to the Deemed Date;
- Each TPR which is entered must exist in the edb_daily_profile_coefficients table for the SSC Id entered in the SSC ID field and for the Settlement Date equal to the Deemed Date;
- For each TPR which is entered, Register Digits, 1st Reading and 2nd Reading must be entered;
- The 1st Reading and 2nd Reading must be within the range corresponding to the number of register digits;

If there were no errors and the user chose to ignore any warnings, then:

- All the input data fields are changed to read only;
- The calculation batch process is scheduled by calling a procedure to load the details into the edb_jobs table.
- The MODIFY and CLEAR FORM buttons are enabled.

After the calculation has been scheduled, the form requeries periodically until the calculation has complete, and then when the calculation is complete the form populates the read only fields Transaction Number, Status, Deemed Reading and Warning/Error from the edb_dmr_calculations and edb_dmr_calc_tprs database tables.

After a certain amount of time has passed, if the calculation has not finished, the form puts up a message asking whether the user wants to continue waiting.

12.5.1.14 Action on Button MODIFY

This button makes all the input data fields writeable without changing their content, and clears out the Transaction Number, Status, Deemed Reading and Warning/Error fields. It disables the MODIFY and CLEAR FORM buttons. If the form was still waiting for the completion of the previous calculation, the form stops waiting and will not display the result when the previous calculation is complete.

12.5.1.15 Action on Button CLEAR FORM

This button makes all the input data fields writeable, and clears out all fields. It disables the MODIFY and CLEAR FORM buttons. If the form was still waiting for the completion of the previous calculation, the form stops waiting and will not display the result when the previous calculation is complete.

12.5.1.16 Action on Button TPR_ERRORS

This button displays a separate canvas with details of errors and warnings that occurred during the calculation for the register row on which the button sits

12.5.1.17 Action on Button Close

This button closes the canvas displayed by clicking on the TPR_ERRORS field and reverts to the main canvas.

12.5.2 PROCEDURE EMC_DMR

The calculations of Deemed Meter Readings based on the data entered by the user on the Ad Hoc Deemed Meter Reading Calculation form (EMC_IDM) are handled by this procedure.

This input data is held in database tables, and the results of the calculation are written to the same database tables.

The processing carried out by the procedure is as follows:

The procedure is initiated by the Scheduler (ESC) subsystem. A unique transaction number is passed into the procedure in order to identify the database tables containing the calculation input details.

Read into memory the contents of the database tables edb_dmr_calculations, edb_dmr_calc_profile_classes and edb_dmr_calc_tprs, plus the AA tolerance values from edb_tolerance_values.

The details of the calculations are given in [EFUNDEF] 3.16.

Define the "Meter Advance Period" as the period from the first Meter Reading Date D_1 to the day before the second Meter Reading Date D_2.

Define the "Deemed Meter Advance Period" as follows: If the Deemed Meter Reading Date D_3 is before D_1, the period runs from D_3 to (D_1-1). If D_3 is between D_1 and D_2, the period runs from D_1 to (D_3-1). If D_3 is after D_2, the period runs from D_2 to (D_3-1).

For each row retrieved from the edb_dmr_calc_tprs table

For each of Meter Advance Period and the Deemed Meter Advance Period

Read in the DPCs from the edb_daily_profile_coefficients table for the SSC Id / GSP Group Id / Profile Class Id / TPR Id combination for each Settlement Date for the Meter Advance Period. If a DPC is missing, the calculation is aborted. A short error message is written to the edb_dmr_calc_tprs table and a long error message to the edb_dmr_calc_errors table.

Sum the DPCs retrieved to give the Fraction of Yearly Consumption (FYC) for the relevant period.

Calculate the Meter Advance by subtracting the first Meter Reading M_1 from the Second Meter Reading M_2, correcting for Rollover if necessary.

Using the FYC for the Meter Advance Period

If the value of FYC is non-zero then calculate the AA as the Meter Advance divided by the FYC.

If the FYC is zero, then set the AA to 0.

The AA is rounded to one decimal place.

For each Profile Class which is effective for the Metering System during the Meter Advance Period

Compare the AA to the high and low Annualised Advance Tolerance Values for the Metering System's GSP Group and Profile Class. If the AA is outside the tolerances, write warning messages to the short_error field in the edb_dmr_calc_tprs table and the long_error field in the edb_dmr_calc_errors table.

Calculate the DMA as the AA multiplied by the FYC for the Deemed Meter Advance Period.

Round the DMA to 0 decimal places.

Calculate the DMR from the DMA as follows: If D_3 is before D_1, the deemed meter reading is (M_1-DMA) . If D_3 is between D_1 and D_2, the deemed meter reading is (M_1+DMA). If D_3 is after D_2, the deemed meter reading is (M_2+DMA).

If the DMR exceeds the register rollover value, subtract the register rollover value from the DMR until the value is less than the maximum register value.

If the DMR is less than zero, add the register rollover value to the DMR until the value is equal to or greater than zero.

Write the calculated AAs, DMAs and DMRs and short_errors to the edb_dmr_calc_tprs table. If there is a warning or error, create a record including the long_error in the edb_dmr_calc_errors table. Write the calculation_date_time (which is the time when the DPCs were read in), status and status_message to the edb_dmr_calculations table. calculation_status will only be non null if there was an Oracle error, in which case it will contain the Oracle error text.

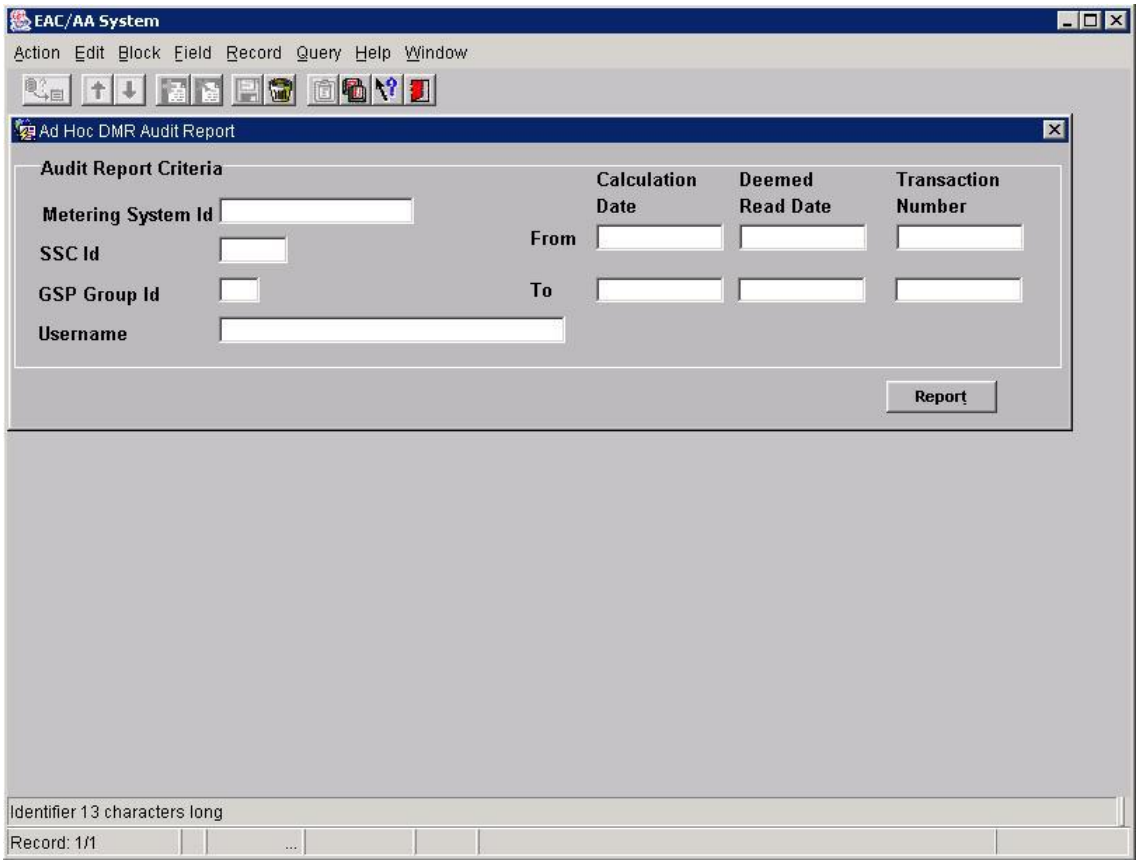
Possible values of short_error and long_error are given in sections 4.3.21 and 4.3.22.

This procedure will be implemented in PL/SQL.

12.5.3 FORM EMC_IAU

12.5.3.1 Screen Layout

The form EMC_IAU is activated from the Ad Hoc DMR Calculation Audit Report menu item.



12.5.3.2 Screen Behaviour

The form EMC_IAU allows the EAC/AA users to identify a range of Ad Hoc DMA Calculations which have been run and submit a report containing the inputs and outputs of those calculations.

The form allows the user to enter a set of parameters, which will be used to initiate the report EMC_AUD. All the parameters are individually optional i.e. if the user leaves some parameters unspecified, a report will be produced for all the values of the unspecified parameters. However as a minimum either a Metering System Id or a Calculation Date or a Transaction Number must be entered.

When the report button is selected, the form will check that at least one edb_dmr_calculations database record is present for the combination of Metering System Id and/ or Calculation Date and/or Transaction Number as specified by the user, but it will not check that records do exist for the full combination of input parameters – the report may be produced with no records.

The user may enter only one of the three ranges : either Calculation Date or Deemed Reading Date or Transaction Number.

The form does not offer any lookup facility.

Form Action On	Form Response
Selection of Form	Display the three blocks of the form, place the cursor on

	the Metering System Id column and put the form in insert mode (which is the only mode for this form – query mode is invalid)
Tabbing	Move the cursor to the next field. Perform validation as specified in the Form Structure section. For the pairs of fields used to specify ranges, if the From value has just been entered and the To value is null, copy the From value to the To value as a default. Where a value has just been entered in either the From field or the To field, blank out the From fields and To fields in the other two ranges.
Clear Record	Clears the contents of all the fields.
Clicking on Report Button	Validate that the minimum data (a Metering System Id or a Calculation Date or a Transaction Number) has been entered, then check that at least one edb_dmr_calculations database record does exist for which ever combination of these three was entered (but do not validate for the full combination of fields entered), then submit the report, then display a message confirming that the report has been submitted.
Clicking on Function Keys Button	Display mapping of logical functions to physical keys.
Clicking on Help Key Button	Invokes EAC/AA System help.
Clicking on Exit Key Button	Exit form.

12.5.3.3 Description

This form allows EAC/AA users to request an Ad Hoc Deemed Meter Reading Calculation Audit Report, specifying criteria to specify which calculations are to be reported on.

It contains three blocks:

- Control Block: contains the Report button which initiates the report.
- Tool Bar Block: contains short cut buttons, simplifying the selection of allowed functionality of the form.
- Report Parameters Block: contains fields in which the user enters the criteria which specify which database records are to be reported.

The following user roles will be able to access this form:

- EAC/AA Operations Supervisor
- EAC/AA System Auditor

12.5.3.4 Form Structure

Field Name	**Description**
Block: CONTROL	Block contains the report button only.
Button REPORT	Button to trigger the background process on the Server to perform the report. The

	triggering of the background process is achieved by calling a procedure to load the procedure and parameter details into the edb_jobs table. The data passed to the Scheduler (ESC) has been specified in section 12.3.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.
Block: DATA_ENTRY	Block contains the fields which specify the calculations to be reported.
Field METERING_SYSTEM_ID	The Metering System Id for which the report is required.
Field SSC_ID	The Standard Settlement Configuration Id for which the report is required.
Field GSP_GROUP_ID	The GSP Group Id for which the report is required.
Field: USERNAME	The username (who initiated the calculations) for which the report is required.
Field FROM_CALCULATION_DATE	The lower range of calculation dates for which the report is required, in the format 'DD/MM/YYYY'.
Field TO_CALCULATION_DATE	The upper range of calculation dates for which the report is required, in the format 'DD/MM/YYYY'.
Field FROM_DEEMED_READ_DATE	The lower range of Deemed Meter Reading dates for which the report is required, in the format 'DD/MM/YYYY'.
Field TO_DEEMED_READ_DATE	The upper range of Deemed Meter Reading dates for which the report is required, in the format 'DD/MM/YYYY'.
Field FROM_TRANSACTION_NUMBER	The lower range of transaction numbers for which the report is required
Field TO_TRANSACTION_NUMBER	The upper range of transaction numbers for which the report is required

12.5.3.5 Action on Form Load

Display the three blocks of the form, and place the cursor in the Metering System field.

12.5.3.6 Action on Query

Not Allowed.

12.5.3.7 Action on Update

Not Allowed.

12.5.3.8 Action on Insert

Not Allowed.

12.5.3.9 Action on Delete

Not Allowed.

12.5.3.10 Action on Button REPORT

Validate that either a Metering System Id or a Calculation Date or a Transaction Number has been entered and that at least one edb_dmr_calculations record matches the values in those fields. Validate that any value in the TO_CALCULATION_DATE field is greater than the FROM_CALCULATION_DATE field. Validate that any value in the TO_DEEMED_READ_DATE field is greater than the FROM_DEEMED_READ_DATE field. Validate that any value in the TO_TRANSACTION_NUMBER field is greater than the FROM_TRANSACTION_NUMBER field.

Schedule the report process by calling a procedure to load the details into the edb_jobs table. All the report parameters entered by the user are passed as parameters.

12.5.4 PROCEDURE EMC_AUD

This procedure produces the Ad Hoc Deemed Meter Calculation Audit Report, based on the report parameters entered by the user on the Ad Hoc Deemed Meter Calculation Audit Report (EMC_IAU) form.

The procedure is initiated by the Scheduler (ESC) subsystem. The report criteria which the user chose to enter are passed into the procedure as parameters.

Build an SQL statement from the input parameters to use to select the relevant records from the edb_dmr_calculations table.

Note that the layout of the machine-readable exception report is given in section 3.2.3; this explains the contents of the records defined by the three-letter record codes referred to in the following steps:

Write headers to the machine-readable report (including the username from edb_jobs)

Write a USR record to the machine-readable report

For each report parameter entered by the user

Write a SEL record to the machine-readable report

Select the edb_dmr_calculations records

For each edb_dmr_calculations record retrieved

Write the MET record to the machine-readable report

Select all edb_dmr_calc_profile_classes records

For each record retrieved

Write the PRO record to the machine-readable report

Select all edb_dmr_calc_tprs records

For each record retrieved

Write the REG record to the machine-readable report

Select all edb_dmr_calc_errors records

For each record retrieved

Write the ERR record to the machine-readable report

Write footer to the machine-readable report

Create records in edb_data_files and edb_report_files for the machine-readable report.

The layout of the human-readable report generated from it by the ERP Report Formatter when the user requests to view the report is as follows:

Ad Hoc Deemed Meter Reading Calculation Audit Report

```
EAC/AA Ad Hoc Deemed Meter Reading Calculation Audit Report    An Electricity Company                          10/06/2005 13:48

User: SYSAUDITOR

Report Criterion                      Value
----------------                      -----
Metering System Id                    1234567890123
SSC Id
GSP Group Id
Username
Calculation Date From
Calculation Date To
Deemed Read Date From
Deemed Read Date To
Transaction Number From
Transaction Number To

Metering                 GSP         Reading    Reading    DMR        Calculation
System        Transaction Group SSC  Date 1     Date 2     Date       Date Time       Username Status Status Message
--------      ----------- ----- ---  -------    -------    ----       -----------     -------- ------ --------------
1234567890123 12345678    _A    0001 01/01/2005 01/04/2005 15/05/2005 08/06/2005 11:43 FRED     W


Profile
Class   Effective From Settlement Date
------- ------------------------------
2       01/01/2000
3       04/08/2002


      Reg Reg
TPR   Id  Digits Reading 1 Reading 2 Rollover AA            DMA           Deemed Meter Reading
---   --- ------ --------- --------- -------- --            ---           --------------------
00057 AA  7      4569327   4572567   T        12345.1       1500.1        4574067


Error
Severity Error Details
-------- -------------
W        Tolerance Exception for AA 12345.1 Meter Advance 1500.1 From 01/01/2005 To 01/04/2005 For Profile Class 3 High AA 50 Low
         AA -5
Page:  1
```

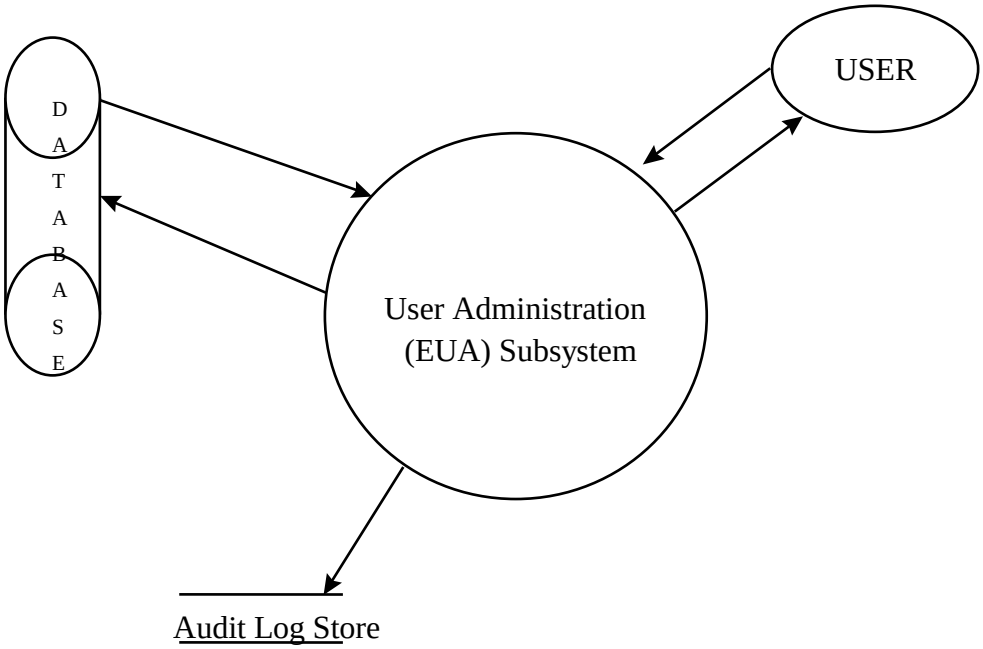
13 Technical Specification - Subsystem EUA Specification

13.1 Introduction

This subsystem provides two Oracle forms. One provides a facility for a user to change his own password. The other one provides the EAC/AA System Manager with a facility to manage users.

The forms work on standard Oracle database tables. No application database tables are involved. All the work is done directly from the form. No batch process is involved.

13.2 Subsystem Context



13.2.1 User Interface

The interaction between the EAC/AA user and the User Administration (EUA) subsystem is achieved via the forms EUA_MSS and EUA_UPC.

The form EUA_MSS is used by the System Manager for database administration and the form EUA_UPC is used by users to change their own passwords.

13.2.2 Database Interface

The interaction between the various forms in this subsystem with the database are handled by Oracle SQL*Net. The data passed to the forms by the user will be defined in the form specification section.

13.2.3 Audit Log Interface

Certain actions performed using the form EUA_MSS will be logged for audit purposes: creation of users; removal of users; granting roles to users; revoking roles from users.

This will be achieved by the form, which will call a database procedure to send the alterations to the data to an audit log file. The details of the user who made the change and the date and time of the amendment are also written to the audit log file. The log file will be stored in a directory named E_archive (retrieved from edb_ref_values). The physical implementation of the directory will be determined based on the target machine.

The amendment are logged as follows:

Action	**Written to Audit Log**
Create User	<User-Action-by)>|<Date/Time>|C|<User-created>|NONE
Drop User	<User-Action-by)>|<Date/Time>|D|<user-dropped>|NONE
Grant Role	<User-Action-by)>|<Date/Time>|G|<User-changed>|<role-granted>
Revoke Role	<User-Action-by)>|<Date/Time>|R|<User-changed>|<role-revoked>

13.3 Subsystem Processing

There are no interfaces within this subsystem to discuss.

13.4 Data Usage

The System Data section provides a cross reference for the components of the subsystem and their mode of access.

The Local Data section contains the details of the audit data maintained by this subsystem.

13.4.1 System Data

The details of the standard Oracle tables accessed by this subsystem are as follows:

Form / Procedure	Table / View	Insert	Modify	Delete	Read
FORM EUA_MSS	dba_users	X	X	X	X
	dba_role_privs		X		X
FORM EUA_UPC	dba_users		X		

13.4.2 Local Data

The form EUA_MSS logs certain actions as described in section 13.2.3.

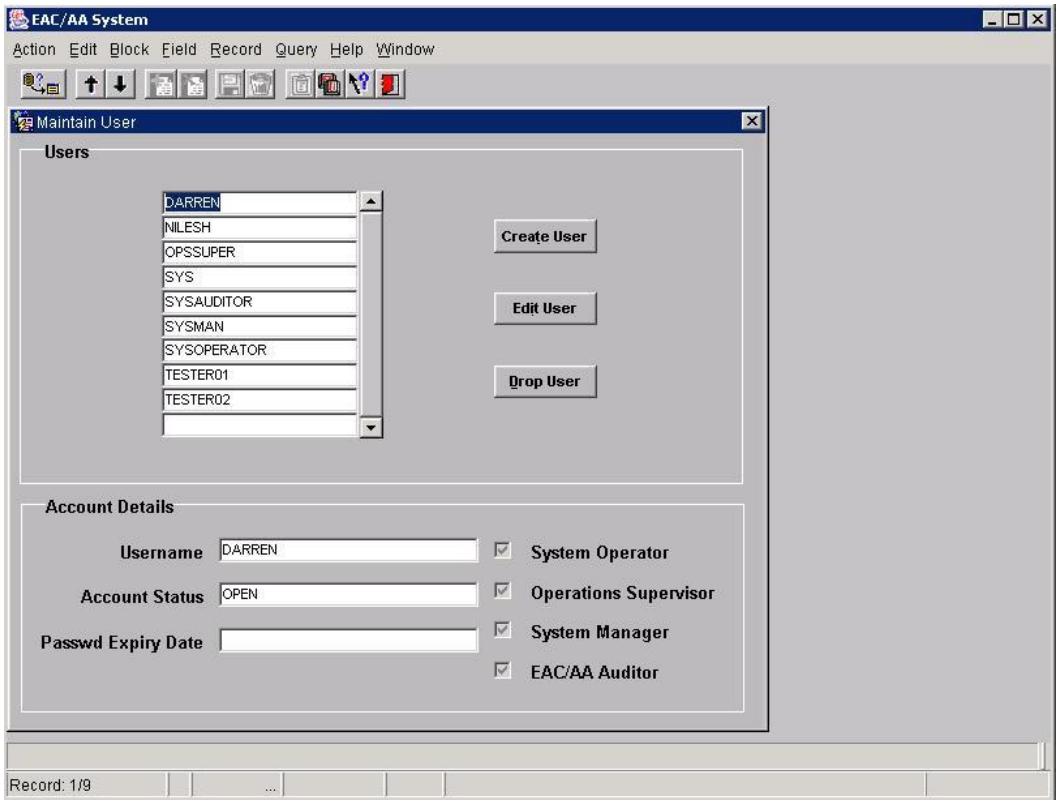
13.5 Procedure Details

The details of the forms and report contained within this subsystem are given in the following sections.

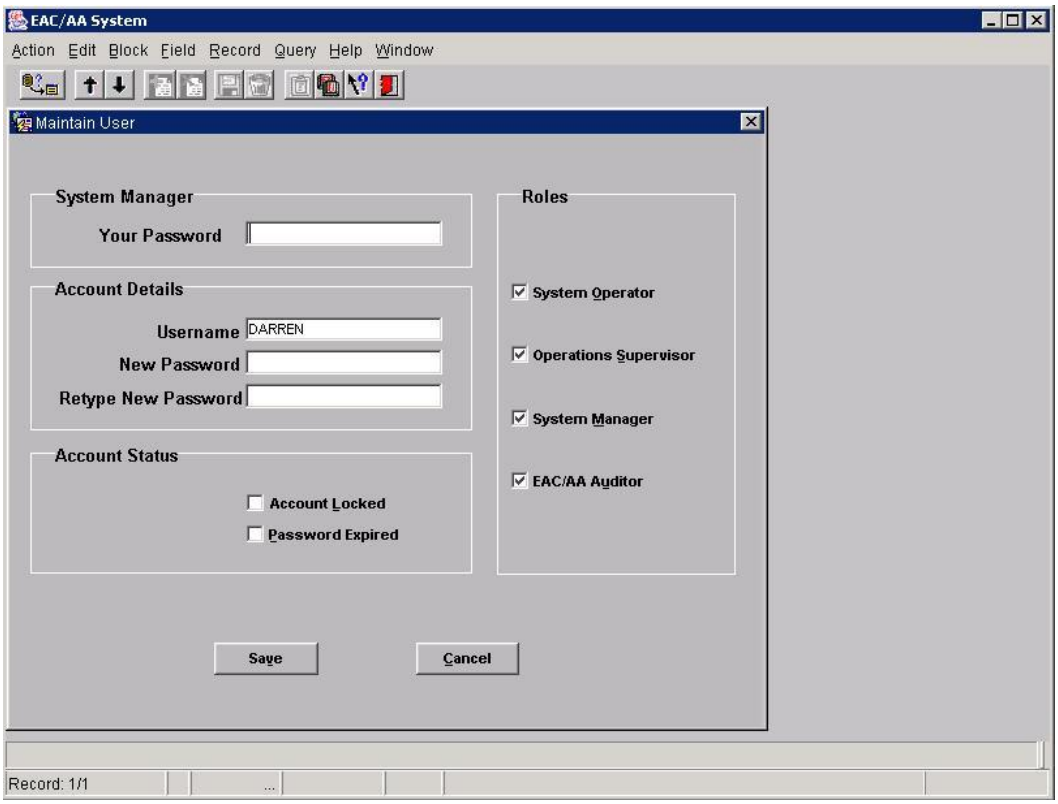
13.5.1 FORM EUA_MSS

13.5.1.1 Screen Layout

The form EUA_MSS is activated from the Maintain System Security menu item.



When the Create User or Edit User button is pressed, a second canvas is displayed:



13.5.1.2 Screen Behaviour

The form EUA_MSS allows EAC/AA System Manager users to manage the EAC/AA user accounts. Only EAC/AA users with the System Manager role can use this form.

The table below outlines all the possible actions associated with the form EUA_MSS:

Form Action On	**Form Response**
Selection of Form	Display the first three blocks of the form (View Users canvas), and execute a query in the VIEW_USER_MASTER_BLK Block.
Selecting a Row	Populate the VIEW_USER_DETAIL_BLK block with the details for this user.
Moving to Next Record	Move to the next displayed row.
Moving to Previous Record	Move to the previous displayed row.
Tabbing	If on the Add/Edit User canvas, move the cursor to the next field, validating the field just entered as described in the Form Structure section.
Clicking On Scroll Bar	Highlight the record corresponding to the position of the scroll bar.
Clear Record	If in the Add/Edit User canvas, and adding a user, clears all the fields.
Function Key	Display mapping of logical functions to physical keys.
Help Key	Invokes EAC/AA System help.
Clicking on Create User	Display the Add/Edit User canvas, with all the fields

Button	blank, and the cursor in the Your Password field.
Clicking on Edit User Button	Display the Add/Edit User canvas, with the fields populated for the user being edited, and the cursor in the Your Password field.
Clicking on Drop User Button	If the User is one of the standard Oracle users SYS, SYSTEM, OUTLN, DBSNMP or PERFSTAT, then do not allow the user to be dropped. Ask the user to confirm that he wants to drop this user. If the confirmation is made, then drop the user and redisplay the list of users.
Clicking on Save Button	Carries out the Add User or Edit User operation, and returns from the Add/Edit User canvas to the View Users canvas, and requeries. Writes entries to the Audit Log if necessary.
Clicking on Cancel Button	Abandons out the Add User or Edit User operation, and returns from the Add/Edit User canvas to the View Users canvas.

13.5.1.3 Description

This form allows an EAC/AA System Manager user to manage the EAC/AA user accounts

It contains six blocks:

- Tool Bar Block, this block contains short cut buttons, simplifying the selection of allowed functionality of the form.

On the "View Users" canvas:

- VIEW_USER_MAST_BLK Block contains a list of usernames;
- VIEW_USER_DTL_BLK contains details of the user selected on the list;
- VIEW_USER_CTL_BLK contains buttons to add, drop or edit the user selected on the list.

On the "Add/Edit Users" canvas:

- ADD_EDIT_USER_BLK Block contains the details of the user being added or edited;
- ADD_EDIT_USER_CTL_BLK contains Save and Cancel buttons.

Only the EAC/AA System Manager user role can access this form.

Form Structure

Field Name	**Description**
Block: VIEW_USER_MAST_BLK	Block contains a list of users, which is read-only.
Field USER_NAME	dba_users.username
Block: VIEW_USER_DTL_BLK	Block contains details of the selected user.

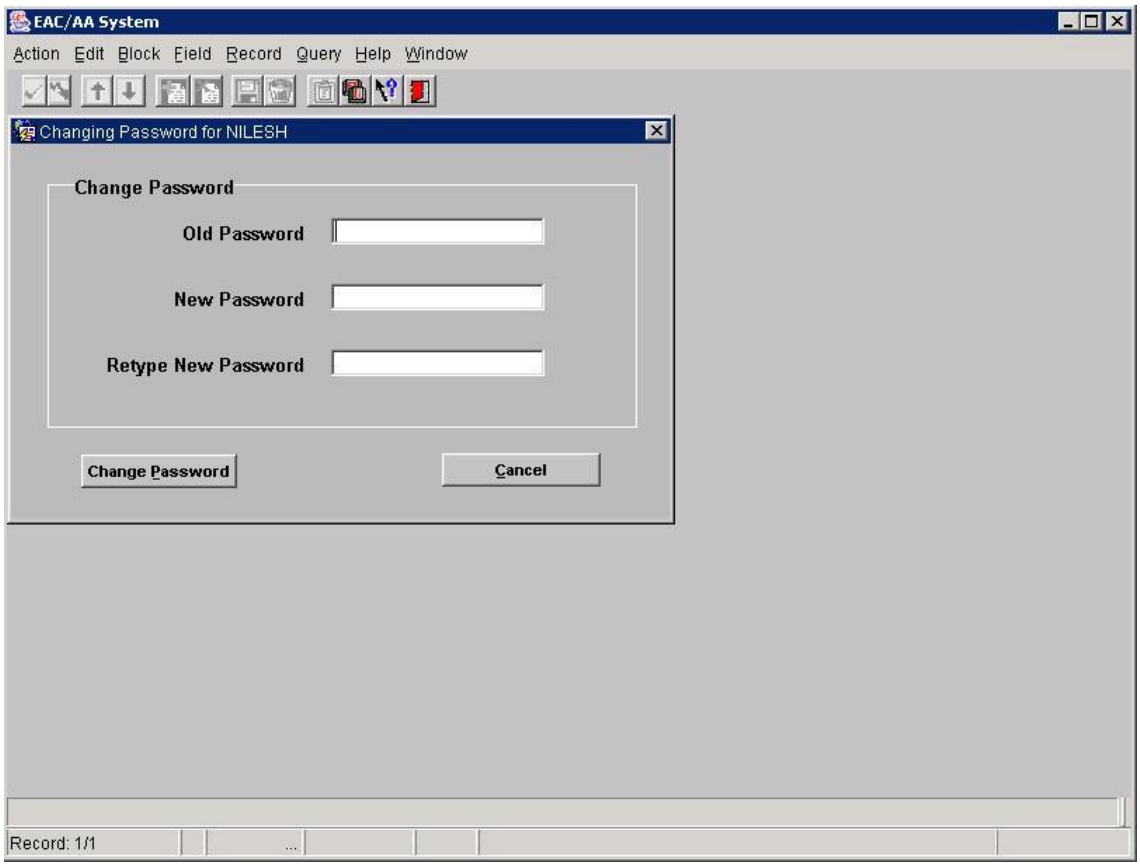
	All fields are read-only.
Field USER_NAME	dba_users.username
Field ACCOUNT_STATUS	dba_users.account_status
Field EXPIRY_DATE	dba_users.expiry_date (Note that a user can continue to log on to his account after the expiry date for the number of days given by the grace period, which is defined in the user's profile).
Field SYSTEM_OPERATOR	dba_privs.granted_role : ticked if the user selected has the eac_sys_operator role
Field OPERATIONS_SUPERVISOR	dba_privs.granted_role : ticked if the user selected has the eac_ops_supervisor role
Field SYSTEM_MANAGER	dba_privs.granted_role : ticked if the user selected has the eac_sys_manager role
Field EACAA_AUDITOR	dba_privs.granted_role : ticked if the user selected has the eac_sys_auditor role
Block: VIEW_USER_CTL_BLK	Block contains buttons to add, drop or edit the selected user.
Button CREATE_USER	Displays the Add/Edit Users canvas, with all the fields blank.
Button EDIT_USER	Displays the Add/Edit Users canvas, with all the fields populated with the values for the user being edited.
Button DROP_USER	Asks the user to confirm then drops the user and requeries on the VIEW_USER_MAST_BLK. An entry is written to the Audit Log. Users may not drop their own accounts.
Block: ADD_EDIT_USER_DTL_BLK	Block contains details of the user being added or edited. Fields are writeable.
Field YOUR_PASSWORD	dba_users.password – for the System Manager user who is carrying out the change – this field is concealed with asterisks
Field USER_NAME	dba_users.username – this field can only be entered if a new user is being added. It must be at least 4 characters long.
Field NEW_PASSWORD	dba_users.new_password – this field is concealed with asterisks and must be at least 6 characters long
Field RE_ENTER_NEW_PASSWORD	dba_users.new_password – this field is concealed with asterisks and must match the NEW_PASSWORD field
Field SYSTEM_OPERATOR	dba_privs.granted_role : ticked if the user selected has the eac_sys_operator role
Field OPERATIONS_SUPERVISOR	dba_privs.granted_role : ticked if the user selected has the eac_ops_supervisor role

Field SYSTEM_MANAGER	dba_privs.granted_role : ticked if the user selected has the eac_sys_manager role
Field EACAA_AUDITOR	dba_privs.granted_role : ticked if the user selected has the eac_sys_auditor role
Field ACCOUNT_LOCKED	dba_users.account_status :ticked if status is locked.
Field ACCOUNT_EXPIRED	dba_users.account_status :ticked if status is expired (this includes where the expiry date has passed but the current date is still within the grace period). An expired account can only be change to unexpired if a new password has been entered.
Block: ADD_EDIT_USER_CTL_BLK	Block contains Save and Cancel buttons
Button SAVE	Does the validation specified for the individual fields, and makes sure that the user has at least one of the four roles granted. Carries out the user creation or user edits, returns to the View Users canvas and requeries the VIEW_USER_MAST_BLK. If a user has been created, or roles have been granted or revoked, appropriate entries are written to the Audit Log. New users created are assigned the profile PROF_EACAA.
Button Cancel	Returns to the View Users canvas without making any edits.
Block: TOOLBAR	Block contains shortcut buttons, simplifying the selection of allowed functionality of the form
Button NEXT_RECORD	Moves the cursor to the next row of the "VIEW_USER_MAST_BLK" Block, highlighting the row.
Button PREVIOUS_RECORD	Moves the cursor to the previous row of the "VIEW_USER_MAST_BLK Block, highlighting the row.
Button FUNCTION_KEYS	Invokes standard Oracle function to display mapping of logical functions to physical keys.
Button HELP	Invokes EAC/AA System help.
Button EXIT	Invokes standard Oracle function to exit the form.

13.5.2 FORM EUA_UPC

13.5.2.1 Screen Layout

The form EUA_UPC is activated from the Change Password menu item on the File menu.



13.5.2.2 Screen Behaviour

The form behaves as though it was a modal dialogue box. All EAC/AA users can use this form.

The table below outlines all the possible actions associated with the form EUA_UPC:

Form Action On	Form Response
Selection of Form	Display the two blocks of the form and puts the cursor in the Old Password field
Clicking on Change Password Button	Alters the user's password and exits the form
Clicking on Cancel Button	Exits the form without altering the password

13.5.2.3 Description

This form allows EAC/AA users to change their passwords.

It contains one block, the CHANGE_PASSWORD_BLK.

Form Structure

Field Name	Description
Block: CHANGE_PASSWORD_BLK	

Field OLD_PASSWORD	dba_users.password – this is validated to ensure it does match the password in the database – field is concealed with asterisks
Field NEW_PASSWORD	dba_users.password – must be at least 6 characters long – field is concealed with asterisks
Field NEW_PASSWORD_CONFIRM	dba_users.password – must match NEW_PASSWORD – field is concealed with asterisks
Button CHANGE_PASSWORD	Validates the fields as described under the individual fields. Alters the user's password and exits the form
Button CANCEL	Exits the form without altering the password

14 Cross References

This section provides a number of different types of cross reference. In order to reference sections of the physical design, the name of the procedure or form is stated. The names of these are mapped to sections in the physical design as follows:

2.1 System Overview
2.2 System Architecture
2.6 User Interface Overview
2.7 Database Overview
2.8 Fallback, Backup and Recovery
2.10 Security
3.1.1 General External Interfaces
3.1.2 Daily Profile Coefficient file
3.1.3 EAC/AA request file
3.1.4 EAC/AA file
3.1.5 Deemed Meter Advance request file
3.1.6 Deemed Meter Advance file
3.1.7 Standard settlement configuration file
5.5.1 Procedure EPD_EAC
5.5.2 Report EPD_EAC_CNTRL_REP
5.5.4 Procedure EPD_DMA
5.5.5 Report EPD_DMA_CNTRL_REP
5.5.7 Procedure EPD_DPC
5.5.8 Report EPD_DPC_CNTRL_REP
5.5.10 Form EPD_DPF
6.6.1 Form ECP_SSP
6.6.2 Form ECP_IIF
6.6.3 Form ECP_LSD
6.6.4 Form ECP_RPC
6.6.5 Report ECP_REP
6.6.6 Form ECP_SSC
6.6.7 Form ECP_GPD
8 EFR subsystem
8.5.3 Procedure EFR_FRM
9 ESL subsystem
10.5.1 Procedure EAR_ADP
10.5.2 Procedure EAR_RAD
10.5.3 Report EAR_ADP_RPT
10.5.4 Form EAR_ADP
10.5.5 Form EAR_RAD
11 ERP subsystem
11.5.1 Form EACAAERP
12.5.1 Form EMC_IDM
12.5.2 Procedure EMC_DMR

12.5.3 Form EMC_IAU
12.5.4 Procedure EMC_AUD
13.5.1 Form EUA_MSS
13.5.2 Form EUA_UPC

14.1 Mapping From Logical Design

The purpose of this section is to provide a reference from all the functions described in the Logical Design to the Physical Design. This includes functions, logical user interfaces and data.

14.1.1 Logical Functions

Logical Function	Physical Reference
E0001 Estimate Annual Consumption (Manual)	Estimate Annual Consumption Form EPD_DPF Procedure EPD_EAC
E0002 Determine Deemed Meter Advance (Manual)	Determine Deemed Meter Advance Form EPD_DPF Procedure EPD_DMA
E0003 Load Daily Profiles (Manual)	Load Daily Profiles Form EPD_DPF Procedure EPD_DPC
E0004 Specify Smoothing Parameters	Specify Smoothing Parameters Form ECP_SSP
E0005 Archive Daily Profile Coefficients	Archive Daily Profile Coefficients Form EAR_ADP Procedure EAR_ADP Report EAR_ADP_RPT
E0006 Report on Daily Profile Coefficients Form	Report on Daily Profile Coefficients Form ECP_RPC Report ECP_REP
E0007 Identify Files Used in Calculations	Identify Files Used in Calculations Form ECP_IIF
E0008 Report on Archive Data	Report on Archive Data Form EAR_RAD Procedure EAR_RAD
E0009 Browse Smoothing Parameters	Browse Smoothing Parameters Form ECP_SSP
E0010 Specify Standard Settlement Configuration	Specify Standard Settlement Configuration Form ECP_SSC
E0011 Load Standard Settlement Configuration	Load Standard Settlement Configuration ESL subsystem
E0012 Estimate Annual Consumption (Automatic)	Estimate Annual Consumption Procedure EPD_EAC
E0013 Determine Deemed Meter Advance (Automatic)	Determine Deemed Meter Advance Procedure EPD_DMA
E0014 Load Daily Profiles (Automatic)	Load Daily Profiles Procedure EPD_DPC
E0015 View Reports	ERP Subsystem Form EACAAERP
E0016 Determine Ad Hoc Deemed Meter Reading	Determine Ad Hoc Deemed Meter Reading Form EMC_IDM

	Procedure EMC_DMR
E0017 Report on Ad Hoc Deemed Meter Reading Calculations	Report on Ad Hoc Deemed Meter Reading Calculations Form EMC_IAU Procedure EMC_AUD
E0019 Browse GSP Group Profile Class Default EAC details	Specify GSP Group Profile Class Default EACs Form ECP_GPD
EC001 Restrict Access	User Interface Overview
EC002 Update Offline Audit Log	Not included as not required
EC003 Update Online Audit Log	ECP subsystem processing Form ECP_SSP
EC004 Estimate Annual Consumption	Estimate Annual Consumption Procedure EPD_EAC
EC005 Determine Deemed Meter Advance	Determine Deemed Meter Advance Procedure EPD_DMA
EC006 Load Daily Profiles	Load Daily Profiles Procedure EPD_DPC

14.1.2 Logical User Interface

This section is not maintained because it is a cross reference to the EAC/AA User Interface Logical Design document which is itself not maintained.

Logical User Interface	**Physical Reference**
Menu Design	User Interface Overview
Process Data Files	Form EPD_DPF
Specify Smoothing Parameter	Form ECP_SSP
Archive Daily Profile Coefficients	Form EAR_ADP
Report On Profile Coefficients	Form ECP_RPC Report ECP_REP
Identify Input Files Used In Calculation	Form ECP_IIF
Report On Archived Data	Form EAR_RAD
Browse Smoothing Parameter	Form ECP_SSP
Specify Standard Settlement Configuration	Form ECP_SSC
Load Daily Profiles Control report	Report EPD_DPC_CNTRL_REP
Report on Daily Profile Coefficients	Report ECP_REP
Report on Archived Data	Report EAR_ADP_RPT
Estimate Annual Consumption Control Report	Report EPD_EAC_CNTRL_REP
Determine Deemed Meter Advance Control Report	Report EPD_DMA_CNTRL_REP

14.1.3 Data Mapping

Logical Data	Physical Reference
Entity: Ad Hoc Deemed Meter Reading Calculation	**Table: edb_dmr_calculations**
Transaction Number (Prime Key)	transaction
Metering System Id	metering_system_id
Standard Settlement Configuration Id	std_sett_config_id
GSP Group Id	gsp_group_id
First Meter Reading Date	mr_date_1
Second Meter Reading Date	mr_date_2
Deemed Meter Reading Date	dmr_date
Date and Time of Calculation	calculation_date_time
User Id	username
Entity: Ad Hoc Deemed Meter Reading Calculation Profile Class	**Table: edb_dmr_calc_profile_classes**
Transaction Number (Prime Foreign)	transaction
Profile Class Id (Prime Key)	Profile_class_id
Effective From Settlement Date {MSPC}	settlement_from_date
Entity: Ad Hoc Deemed Meter Reading Calculation Time Pattern Regime	**Table: edb_dmr_calc_tprs**
Transaction Number (Prime Foreign)	transaction
Entry Number (Prime Key)	entry_location
Time Pattern Regime Id	time_pattern_regime_id
Register Id	register_id
Register Digits	register_digits
First Meter Reading	meter_reading_1
Second Meter Reading	meter_reading_2
Negative Advance Rollover	Rollover
Annualised Advance	Aa
Deemed Meter Advance	dma
Deemed Meter Reading	dmr
Calculation Failure Reason	short_error
Entity: Average Fraction of Yearly Consumption	**Table: edb_av_frac_y_cons**

GSP Group Id (Prime Key)	gsp_group_id
Standard Settlement Configuration Id (Prime Key)	std_sett_config_id
Time Pattern Regime Id (Prime Key)	t_p_regime_id
Profile Class Id (Prime Key)	profile_class_id
Effective From Settlement Date {AFYC}	eff_from_sett_date
Average Fraction of Yearly Consumption	av_frac_y_con
Entity: Daily Profile Coefficient:	**Table: edb_daily_profile_coefficients**
Settlement Date (Prime Key)	settlement_date
GSP Group Id (Prime Key)	gsp_group_id
Profile Class Id (Prime Key)	profile_class_id
Standard Settlement Configuration Id (Prime Key)	std_sett_config_id
Time Pattern Regime Id (Prime Key)	time_pattern_regime_id
Profile Production Run Number	run_num
Market Participant Id (Foreign Key)	NOT MAPPED AS file_seq_num is a single foreign key
Market Participant Role Code (Foreign Key)	NOT MAPPED AS file_seq_num is single foreign key
Data File Sequence Number (Foreign Key)	file_seq_num
Daily Profile Coefficient	coefficient
Entity: Daily Profile Coefficient Set	**Table: edb_data_files**
Market Participant Id (Prime Foreign)	participant_id
Market Participant Role Code (Prime Foreign)	market_role
Data File Sequence Number (Prime Foreign)	file_seq_num
Settlement Date	settlement_date
Profile Production Run Number	run_num
GSP Group Id (optional)	gsp_group_id
Number of AAs Calculated	num_of_aas_calc
Entity Data File	**Table: edb_data_files**
Market Participant Id (Prime Foreign)	participant_id
Market Participant Role Code (Prime Foreign)	market_role

Data File Sequence Number (Prime Key)	file_seq_num
File Location (Foreign Key)	This is held as data in the edb_ref_values table.
File Sent or Received	file_action
File Name	file_name
File Sent or Received Timestamp (Optional)	file_action_date
File Creation Timestamp	file_creation_date
File Processed Timestamp (Optional)	file_processed_date
File status	file_status
File Format Code	file_format_code
File Content Code	file_content_code
Run Number	run_num
Run Type Code	run_type_code
Settlement Date (Optional)	settlement_date
Settlement Code (Optional)	settlement_code
GSP Group Id (Optional)	gsp_group_id
Entity: File Location	This is held as data in the edb_ref_values table. Depending on the stage of processing the file is at, it is held in a different location.
File Location (Prime Key)	
Entity: GSP Group Profile Class Default EAC	**Table edb_gspg_pc_def_eac**
GSP Group Id (Prime Key)	gsp_group_id
Profile Class Id (Prime Key)	profile_class_id
Effective From Settlement Date {GGPCDE}	eff_from_sett_date
Default EAC	gspg_pc_default_eac
Entity: Market Participant	**Table: edb_market_participants**
Market Participant Id (Prime Key)	participant_id
Market Participant Name	name
Entity: Market Participant Role	**Table: edb_market_participant_roles**
Market Participant Id (Prime Foreign)	participant_id
Market Participant Role Code (Prime Foreign)	market_role

Entity: Market Role	This is held as data in the edb_ref_values table which holds a set of valid Market Roles.
Market Participant Role Code (Prime Key)	
Market Role Description	
Entity: Smoothing Parameter	**Table: edb_smoothing_parameters**
Effective From Settlement Date {SPAR} (Prime Key)	settlement_from_date
Smoothing Parameter	smoothing_param
Entity: Standard Settlement Configuration	**Table: edb_std_settlement_configs**
Standard Settlement Configuration Id (Prime Key)	std_sett_config_id
Standard Settlement Configuration Desc	configuration_desc
Load Associated DPC	load_dpc
Entity: System Configuration	**Table: edb_system_configuration**
System Market Participant Id	participant_id
System Market Participant Role Code	market_role
System Mode	system_mode

14.2 Mapping From Requirements

User Requirement	Physical Reference
1.1	Procedure EPD_EAC
1.2	Procedure EPD_EAC
1.3	Form ECP_SSP
1.4	Procedure EPD_EAC
1.5	Procedure EPD_EAC
1.6	Procedure EPD_EAC
1.7	Procedure EPD_EAC
2.1	Procedure EPD_DMA
2.2	Form EMC_IDM Procedure EMC_DMR
2.3	Form EMC_IDM Procedure EMC_DMR
2.4	Form EMC_IDM Procedure EMC_DMR
2.5	Form EMC_IDM Procedure EMC_DMR
3.1	Procedure EPD_DPC

	Report EPD_DPC_CNTRL_REP
3.2	Report EPD_EAC_CNTRL_REP Report EPD_DMA_CNTRL_REP
3.3	Form ECP_RPC Report ECP_REP
3.4	Form EMC_IAU Procedure EMC_AUD
4.1	Daily Profile Coefficient file Form EPD_DPF Procedure EPD_DPC
4.2	Procedure EPD_EAC EAC/AA request file
4.3	Procedure EPD_DMA Deemed Meter Advance request file
4.4	Procedure EPD_EAC Procedure EPD_DMA EAC/AA file Deemed Meter Advance file
4.5	Form ECP_SSC ESL subsystem Standard settlement configuration file
4.6	Form ECP_SSP
4.7	Form EPD_DPF Procedure EPD_DPC
4.8	System Overview Procedure EPD_DPC Procedure EFR_FRM
4.9	Form EMC_IDM
4.10	Form ECP_GPD
4.11	ESL Subsystem
5.1	Procedure EPD_EAC Procedure EPD_DMA
5.2	EFR subsystem
5.3	Form EAR_ADP Procedure EAR_ADP Report EAR_ADP_RPT Form EAR_RAD Procedure EAR_RAD
5.4	EFR subsystem
5.5	Procedure EPD_DPC
5.6	Procedure EPD_DPC
5.7	Procedure EPD_EAC Procedure EPD_DMA EAC/AA file Deemed Meter Advance file
5.8	Form ECP_IIF
5.9	Form EMC_IAU Procedure EMC_AUD
6.1	EFR subsystem Security
6.2	Procedure EFR_FRM
6.3	General External Interfaces Procedure EPD_EAC Procedure EPD_DMA
6.4	Procedure EPD_EAC Report EPD_EAC_CNTRL_REP
6.5	Procedure EPD_DPC

6.6	Form ECP_LSD
6.7	Report EPD_EAC_CNTRL_REP Report EPD_DMA_CNTRL_REP
6.8	User Interface Overview Security
6.9	User Interface Overview No menu option provided
6.10	Form ECP_SSP
6.11	User Interface Overview Access is not provided, if not entitled so not possible to attempt to breach security.
6.12	Procedure EPD_EAC Procedure EPD_DPC
6.13	Form EMC_IAU Procedure EMC_AUD
6.14	Form EUA_MSS Form EUA_UPC
6.15	Form ECP_GPD
6.16	No functionality is provided which would allow the user to modify Average Fraction of Yearly Consumption values other than the file load described in the ESL Subsystem.
7.1	Procedure EPD_EAC
7.2	System Overview System Architecture Database Overview
7.3	System Overview System Architecture Database Overview
7.4	System Overview System Architecture Database Overview
7.5	System Overview System Architecture Database Overview
7.6	System Overview System Architecture Database Overview
7.7	Fallback, Backup and Recovery
7.8	System Architecture Database Overview
8.1	System Overview System Architecture
8.2	System Overview
8.3	System Overview
8.4	System Overview

14.3 Usage of Data

Table:	Create	Read	Update	Delete
edb_ref_domains	Predefined data	Form EPD_DPF Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EFR_FRM Procedure EAR_ADP Procedure ESL_LSC		
edb_ref_values	Predefined data	Form EPD_DPF Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EFR_FRM Procedure EAR_ADP Procedure ESL_LSC		
edb_market_participants	System specific predefined data	Procedure EFR_FRM		
edb_market_participant_roles	System specific predefined data	Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EAR_ADP		
edb_system_configuration	System specific predefined data	Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EFR_FRM Main Menu Form		
edb_data_files	Procedure EFR_FRM Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EMC_AUD Procedure ESL_LSC	Form EPD_DPF Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure ECP_IIF Procedure ECP_LSD	Form EPD_DPF Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EAR_ADP Procedure ESL_LSC	

		Procedure EFR_FRM Procedure EAR_ADP Procedure EAR_RAD Procedure ESL_LSC ERP subsystem		
edb_report_files	Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure EMC_AUD Procedure ESL_LSC	ERP subsystem		
edb_daily_profile_coefficients	Procedure EPD_DPC	Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Report ECP_REP Procedure EAR_ADP Form EMC_IDM Procedure EMC_DMR		Procedure EPD_DPC Procedure EAR_ADP
edb_jobs	Form EPD_DPF Procedure EFR_FRM Form EAR_ADP Form EAR_RAD Form EMC_IDM Form EMC_IAU	Procedure EPD_EAC Procedure EPD_DMA Procedure EPD_DPC Procedure ESC_BDQ Procedure ESC_BQD_RUN Procedure EFR_FRM Procedure EAR_ADP Procedure EAR_RAD Procedure ESL_LSC	Procedure ESC_BDQ Procedure ESC_BQD_RUN	Procedure ESC_BDQ_STOP
edb_std_settlement_configs	Procedure ECP_SSC Procedure ESL_LSC	Procedure EPD_DPC Procedure ECP_SSC Procedure ESL_LSC	Procedure ECP_SSC	Procedure ECP_SSC
edb_smoothing_parameters	Procedure ECP_SSP	Procedure EPD_EAC Procedure ECP_SSP Procedure EAR_ADP	Procedure ECP_SSP	Procedure ECP_SSP Procedure EAR_ADP
edb_procedure_codes	Predefined data	Procedure ESC_BDQ Procedure ESC_BQD_RUN		
edb_tolerance_values	Predefined data	Procedure EPD_EAC		

edb_dmr_calculations	Form EMC_IDM	Form EMC_IDM Procedure EMC_DMR Form EMC_IAU Procedure EMC_AUD	Procedure EMC_DMR	
edb_dmr_calc_profile_classes	Form EMC_IDM	Form EMC_IDM Procedure EMC_DMR Procedure EMC_AUD		
edb_dmr_calc_tprs	Form EMC_IDM	Form EMC_IDM Procedure EMC_DMR Procedure EMC_AUD	Procedure EMC_DMR	
edb_dmr_calc_errors	Procedure EMC_DMR	Form EMC_IDM Procedure EMC_AUD		
edb_gspg_pc_def_eac	Loader script	Form ECP_GPD Procedure EPD_EAC		
edb_av_frac_y_cons	ESL Subsystem	ESL Subsystem Procedure EPD_EAC	ESL Subsystem	

Appendix A Naming Convention

Overall

This appendix describes the naming conventions to be followed within this document.

All items will use names of the following form:

EXX_rest_of_the_name

Where 'E' denotes the EAC/AA system, and 'XX' is a two letter mnemonic ident/ifying the subsystem to which the item belongs.

For example, EFR_FRM is the File Receipt Manager procedure within the File Receipt Manager subsystem.

All database items will use the above naming convention but the name will be in lower case, and 'XX' will be set to 'db'.

Database

All database items must be shorter than the Oracle limit of 30 characters including index and sequence names.

A database item name will be chosen so that it does not clash with any Oracle reserved words.

File naming conventions

In order to conform to the POSIX standard of 14 character filenames, the following file naming convention will be used:

The incoming files are expected to have file names that are 14 characters or less.

The outgoing files will use names of the following form:

DXXXXNNNNNNNNN

where 'D' is the market participant role code, 'XXXX' is the market participant ID and 'NNNNNNNNN' is a 9 digit sequence number. For example, DXXXX123456789

The report files will be named using the above naming convention.