



EAC/AA System Management Guide

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EAC/AA System Management Guide

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1 Introduction

This document is the System Management Guide for the Estimation of Annual Consumption / Annualised Advance (EAC/AA) application software developed for ELEXON.

Software Version

This version of the EAC/AA System Management Guide is applicable to Release 11.01.0 and later of the EAC/AA application software.

1.1 Purpose

The purpose of this System Management Guide is to provide information that will enable the EAC/AA System Manager to support system operation.

1.2 Scope

The EAC/AA application software is the central component of an operational system. The recipient organisation needs to build operational procedures around the application software that will meet the needs of its users and complement other aspects of the organisation's operational environment.

The scope of this guide covers the system management aspects of the EAC/AA application software, such as system structure, directories and file names, archive and restoration of data and guidelines on backup and recovery. Detail pertaining to hardware and third party software products is included only where necessary to support the description of the EAC/AA application software.

For details of operational aspects of the EAC/AA application software, refer to the corresponding Operations Guide.

For details of installation of the EAC/AA application software, refer to the corresponding Installation Guide.

Comments on the completeness and accuracy of this guide are welcome. A Comment Form is contained at the back of this guide.

1.3 Structure of Document

The remainder of this document consists of the following sections:

- Section 2 gives an overview of the EAC/AA system;
- Section 3 describes the application software structure in terms of its subsystems;
- Section 4 outlines the hardware and software environment;
- Section 5 shows the system parameters;
- Section 6 shows the organisation of the EAC/AA database;
- Section 7 describes the organisation of the EAC/AA application software;
- Section 8 provides information on system security;
- Section 9 describes how to start up and shut down the system;

- Section 10 describes the facilities available for monitoring the data used by the application software;
- Section 11 discusses archive and restore facilities;
- Section 12 outlines backup and recovery functionality.

Appendices to this document are as follows:

- Appendix A lists the error messages that may be generated by the EAC/AA application software and which are displayed in logs.

1.4

Amendment History

Issue	Details
0.901	First issue to client.
0.902	Second issue incorporating highest severity APP comment.
0.903	Addressing other APP comments
0.990	Addressing additional comments
1.000	Authorised version. Addresses Pool APP comments.
1.001	Draft version consistent with software release R1.2. Incorporating Logica OR: 5.1.2266 (Logica Internal OR).
1.500	Draft version consistent with software release R1.2. Incorporating internal review comments
2.000	Authorised version consistent with software release R1.3. Incorporating Pool review comments. Includes OR 5.1.2437 (Logica Internal OR).
2.401	Draft for internal review incorporating release 2 changes; changes made to v1.000.
2.490	Draft for review by client incorporating release 2 changes.
2.500	Authorised issue consistent with Release Two. Incorporating Pool Review comments.
2.901	Draft for internal review. Merge of v2.000 and v2.500. Change bars show changes from v2.000.
2.990	Draft for Pool review. Merge of v2.000 and v2.500. Change bars show changes from v2.000.
3.000	Authorised version. Merge of v2.000 and v2.500. Change bars show changes from v2.000.
3.900	Draft for internal review incorporating TA2000 changes.
3.990	Incorporating internal review comments.
3.991	Incorporating Logica Internal OR 2843
3.992	Incorporating Pool Review Comments
4.000	Authorised Version
4.100	Incorporating LCR160/3 (SIR2296) - Reasonableness Checks for Annualised Advances.
4.990	Incorporating LCR170/2 - Upgrade to Oracle 8i.
5.000	Authorised version.

Issue	Details
5.900	Update for Oracle 8.1.7 upgrade.
5.990	Incorporating internal review comments. Incorporating Logica Internal OR 5.1.3100.
6.000	Authorised Version
6.001	Updates for the following OR:- OR3118 - Updating the copyright notice OR3120 - Updating the Oracle version number.
6.002	Change to Office 2000
6.003	Change relating to ELEXON superseding The Electricity Pool
7.000	Authorised version
7.990	Updated date on copyright notice Version for ELEXON review
7.991	Incorporated ELEXON review comments
8.000	Authorised version
8.001	Update for Oracle 9i upgrade.
8.990	Version for ELEXON review
9.001	LCR218/4 BETTA changes.
9.990	Version for ELEXON review
9.991	Applied ELEXON review comments.
10.000	Made Definitive
11.000	Updated document references
11.001	Amendments started for Nov. 04 Release Incorporating CP1052: UNIX Upgrade 5.1A – 5.1B
11.002	Incorporated comments from test and programme teams from review date 28/09/04. Issued to ELEXON for review.
11.003	Incorporated further feedback. Issued to ELEXON for review.
12.000	Made Definitive
12.900	Draft version for Nov 05 release, incorporating: CP933 – Management of System Security CP1081 – Ad Hoc DMR Calculation
12.901	Incorporating Internal Review Comments
12.990	Version for ELEXON Review
12.991	Incorporating ELEXON review comments
13.000	Made Definitive
13.001	Draft for Internal review for Nov.06 release, including Oracle upgrade to 10g on 2-Tier & 3-Tier Architecture
13.002	Draft for Internal review for Nov.06 release, including further details of Oracle upgrade to 10g on 2-Tier & 3-Tier Architecture
13.990	Version for ELEXON review
13.991	Incorporating ELEXON review comments
14.000	Authorised version

Issue	Details
14.900	Draft version for Nov 08 release, incorporating: CP1187 – Port to Solaris OR3713 HD063897 Archiving Fix OR3689 Nov 06 Omissions
14.990	Incorporated Internal review comments ; draft for ELEXON review
15.000	Authorised version
15.010	Updated document classification
15.990	Updated fro CP1311 Changes
15.991	After internal review
15.992	After ELEXON review. Included CP1295 changes
16.000	Definitive Version
17.0	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)
17.1	CP1436 - Updated for Tech Upgrade (Windows OS from 2003 to 2012 and OFM upgrade from 11.1.1.6.0 to 11.1.2.2.0)
17.2	P305 – Updated for November 2015 Release
17.3	Incorporated the ELEXON review comments

1.5 Summary of Changes

Changes as indicated in the amendment history.

1.6 Changes Forecast

Agreed Change Requests will be incorporated.

1.7 References

Mnemonic	Information	Details
[EOPSGDE]	Title: Version No: Author: Date:	EAC/AA Operations Guide. 18.0 Cognizant 27 June 2013
[EINGDE]	Title: Version No: Author: Date:	EAC/AA Installation Guide (740PZT). 17.0 Cognizant 27 June 2013
[ETSPEC]	Title: Version No: Author: Date:	EAC/AA Physical Design Technical Specification 18.0 Cognizant 27 June 2013

1.8 Abbreviations

EAC/AA	Estimation of Annual Consumption / Annualised Advance
AFYC	Average Fraction of Yearly Consumption
BETTA	British Electricity Trading and Transmission Arrangements

BM	Balancing Mechanism
BMUIGG	BM Unit In GSP Group
BSC	Balancing and Settlement Code
BUSTEV	BM Unit Supplier Take Energy Volume
CCC	Consumption Component Class
CDCA	Central Data Collection Agent
CTCU	Central Tele-switch Control Unit
DA	Data Aggregator
DC	Data Collector
DMA	Deemed Meter Advance
DMR	Deemed Meter Reading
DPP	Daily Profile Production
DRP	Data Retention Period
DUoS	Distribution Use of System
EPD	Elementary Process Description
GMT	Greenwich Mean Time
GSP	Grid Supply Point
HH	Half-Hourly
HHDA	Half-Hourly Data Aggregator
IAR	Initial Allocation and Reconciliation
ISR	Initial Settlement and Reconciliation
ISRA	ISR Agent
LDM	Logical Data Model
LLF	Line Loss Factor
LLFC	LLF Class
MDD	Market Domain Date
MDDA	MDD Agent
MSID	Metering System ID
NETA	New Electricity Trading Arrangements
NHH	Non-Half-Hourly
NHHDA	Non-Half-Hourly Data Aggregator
NPG	Non-Pooled Generation
PFA	Pool Funds Administrator
PPR	Profile Production Run
SAA	Settlement Administrator Agent

SPM	Supplier Purchase Matrix
SRE	Settlement Run Equitability
SSA	Settlements System Administrator
SSC	Standard Settlement Configuration
SSR	Supplier Settlement and Reconciliation
SVA	Supplier Volume Allocation
SVAA	SVA Agent
TPR	Time Pattern Regime
TUoS	Transmission Use of System
UTC	Universal Time Clock
VMRPC	Valid Measurement Requirement Profile Class
VSCPC	Valid combinations of Settlement Configurations and Profile Classes

1.9 Intellectual Property Rights and Copyright

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2 Overview of the System

The main functions of the EAC/AA application software 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 and Daily Profile Coefficients;
- Load Daily Profile Coefficients for different Settlement Dates to support the functionality described above;
- Ensure appropriate data is stored in order to view the details of any calculations;
- Maintain configuration data in the database;
- Provide reports on data associated with EAC/AA;
- Generate Deemed Meter Readings based on Daily Profile Coefficients manually on Ad Hoc basis.
- Maintain User functionality to ensure system security and accessibility.

Calculation of EAC/AA requires Daily Profile Coefficient data, with Meter Advances for the Annualised Advance calculation and previous or initial EAC for the Forward EAC calculation. The output from this calculation 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 EAC/AA calculation functions, files are received from external sources, some processing is performed and output is delivered as a file. However, neither the inputs nor the outputs to these calculations are stored in the database. The principal data stored in the EAC/AA database are the Daily Profile Coefficients.

The EAC/AA system can be installed to run in 2 different modes. In Manual Mode, when Daily Profile Coefficient, EAC/AA Calculation Request and Deemed Meter Advance Calculation Request data files have been received, the files are not processed until the user initiates the loading of these files via the user interface. In Automatic Mode, the system automatically initiates these processes upon receipt of the data files. For further details, see sections 2.2 and 3.3.

2.1 Users of System

The EAC/AA system will be operated and managed by the Non-Half Hourly Data Collector appointed to run it. User roles that have been defined for the system are as follows:

- System Operator;
- Operations Supervisor;
- System Manager;

- Auditor.

2.2 Scope of System

Figure 1 places the EAC/AA system in the context of the Operational Framework.

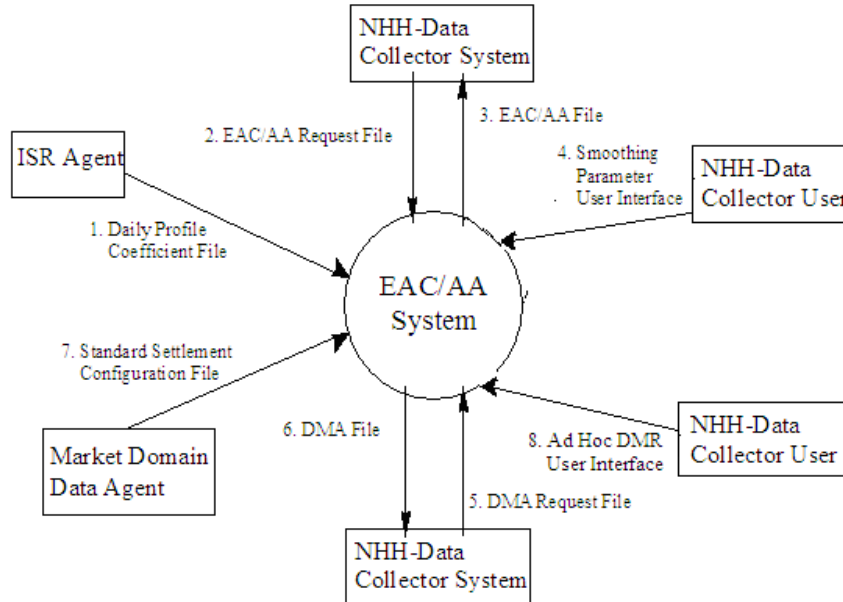


Figure 1: External Interfaces to EAC/AA System

- The Daily Profile Coefficients are transferred to the EAC/AA system via a file interface. The Daily Profile Coefficient files are supplied by:
 - the IAR Agent for Scottish GSP/BSP groups before BETTA
 - the ISR Agent for English & Welsh GSP groups before BETTA
 - the ISR Agent for English, Welsh & Scottish GSP groups after BETTA

If the system is running in Automatic Mode, the actual load process is initiated automatically as soon as the presence of a Daily Profile Coefficient file is detected, otherwise if it is running in Manual Mode, the load process is initiated by the user via a user interface form. Each file contains a set of Daily Profile Coefficients for one or more GSP Groups for a given Settlement Date. Each set comprises a Daily Profile Coefficient for each valid combination of Standard Settlement Configuration, Time Pattern Regime and Profile Class.

- 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 is running in Automatic Mode, the actual calculation process is initiated automatically as soon as the presence of an EAC/AA Request file is detected, otherwise if it is running in Manual Mode, the calculation process is initiated internally by the user via a user interface form.

3. The results of the EAC/AA calculations are passed to the Non-HH Data Collector via the file interface.
4. The Smoothing Parameter data originating from the Non-HH Data Collector is maintained by the EAC/AA users via a user interface form.
5. 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. In Automatic Mode, calculation of Deemed Meter Advance is initiated automatically as soon as the presence of a Deemed Meter Advance Request file is detected, whilst in Manual Mode, it is initiated by the user via the user interface.
6. The results of the Deemed Meter Advance calculations are passed to the Non-HH Data Collector via the file interface.
7. The Standard Settlement Configurations and Average Fractions of Yearly Consumption 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 presence of such a file is detected. If the Id of any Standard Settlement Configuration already exists in the database and the description is different, then an exception report is generated. Similarly if there are any validation errors in Average Fractions of Yearly Consumption data they are included in the exception report and the data is not loaded into the database.
8. The Ad Hoc Deemed Meter Reading calculation can be requested by the users manually via a user interface. The results can then be obtained through an audit report.
9. The GSP Group Profile Class Default EAC data supplied by ELEXON is browsed by the EAC/AA users via a user interface form. The underlying table for the GSP Group Profile Class Default EAC screen is loaded from a script supplied by ELEXON.

3 System Structure

This section describes the EAC/AA system, in terms of subsystems and file stores. For further information about the directory structure that supports the system, refer to section 7.

3.1 EFR File Receipt Manager Subsystem

This subsystem monitors the arrival, at the File Receipt Store, of the following types of files from external sources, as illustrated in Figure 2:

- EAC/AA Request file;
- Deemed Meter Advance Request file;
- Daily Profile Coefficient file;
- Standard Settlement Configuration file.

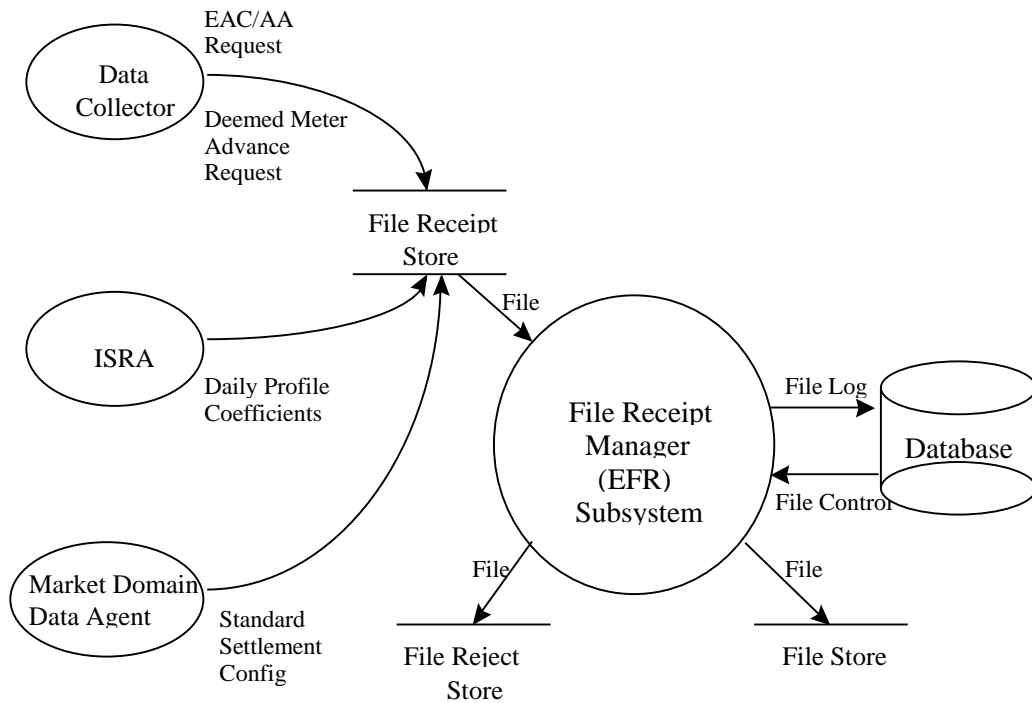


Figure 2: File Receipt Manager Subsystem

The File Receipt Manager subsystem checks the incoming file, and if the file is valid, then the header details are stored in the database and the file is forwarded to the File Store. If the incoming file is invalid, then the file is stored in the File Reject Store.

Each time the File Receipt Manager polls the File Receipt directory, it will check if the file is complete. In the event that an incomplete file arrives in the File Receipt store, the File Receipt Manager will not process the file.

It is recommended that as part of the housekeeping process, if the File Receipt Manager has been operating, the File Receipt store is cleared periodically of old files.

In both Manual and Automatic Modes, when a valid Standard Settlement Configuration is received by the File Receipt Manager, an entry is made in the edb_jobs table, for automatic loading by the Load Standard Settlement Configuration subsystem (see section 3.2). In Automatic Mode only, an entry is also made in the edb_jobs table when a valid Daily Profile Coefficient file, EAC/AA Request file or Deemed Meter Advance Request file is received by the File Receipt Manager. These entries are used for automatic loading by the Process Data Files subsystem (see section 3.3). Starting and stopping the File Receipt Manager is a manual process. Refer to section 9 for further information.

3.2 ESL Load Standard Settlement Configuration Subsystem

This subsystem loads the Standard Settlement Configuration data received by the EAC/AA system from the Market Domain Data Agent into the EAC/AA database. Loading of the Standard Settlement Configurations is initiated by the Scheduler subsystem.

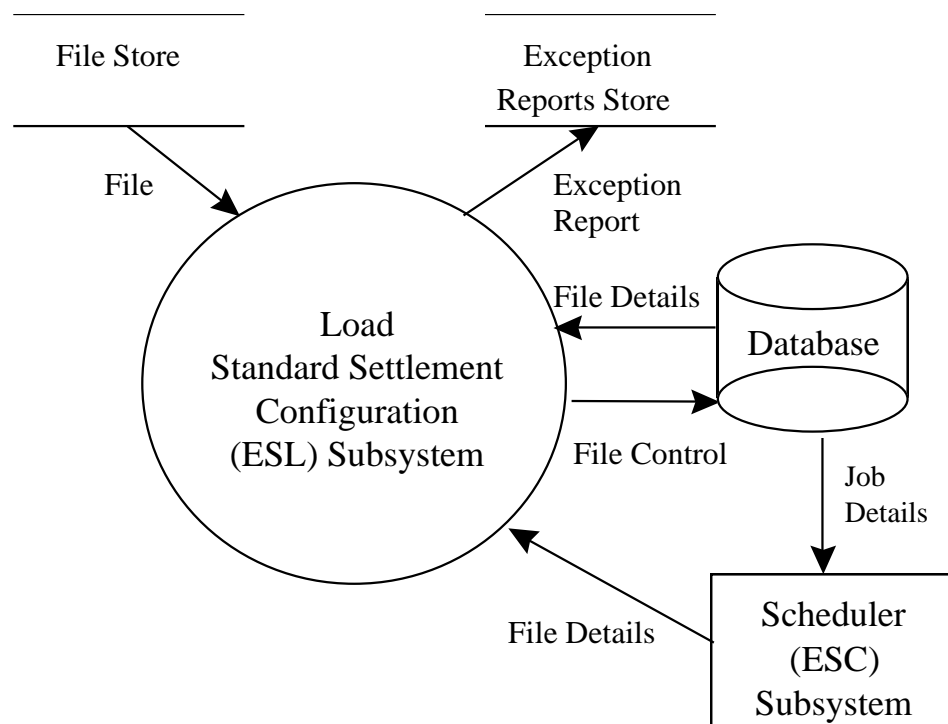


Figure 3: Load Standard Settlement Configuration Subsystem

An exception report is generated in the Exception Reports Store if a Standard Settlement Configuration Id exists in the database, and the Standard Settlement Configuration Description is different to that in the database. Similarly if there are any validation errors in Average Fractions of Yearly Consumption data they are included in the exception report.

3.3 EPD Process Data Files Subsystem

This subsystem provides the facility to initiate batch processes for calculations of EAC/AA and Deemed Meter Advance, and for loading Daily Profile Coefficients.

In Automatic Mode, these three tasks are initiated when the presence of a file of the type required to perform the task is detected (see section 2.2). In Manual Mode, the three tasks are initiated by the user via the user interface. The Scheduler, described in section 3.4, triggers the processes.

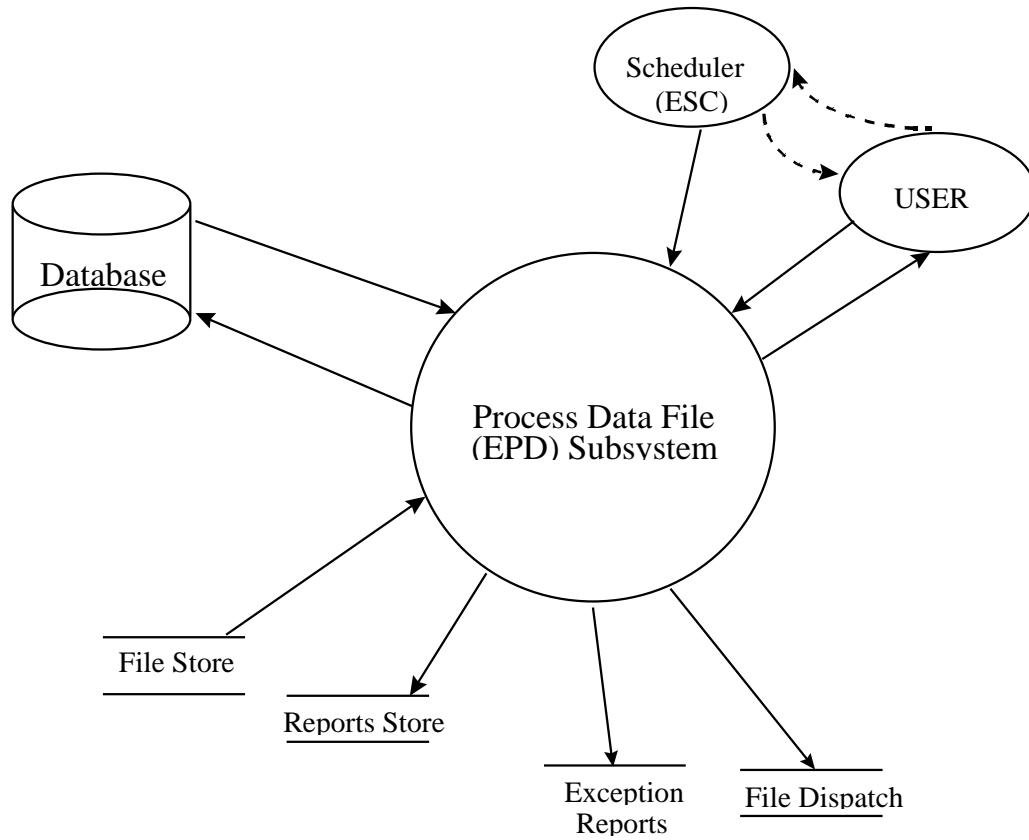


Figure 4: Process Data File Subsystem

(The dashed lines indicate that details are passed to and from the Scheduler via the database.)

The files used by this subsystem are stored in the File Store. Standard Settlement Configurations are accessed from the database.

The output files from the EAC/AA and Deemed Meter Advance calculations are stored in the File Dispatch store, to await extraction by other systems.

3.4 ESC Scheduler Subsystem

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

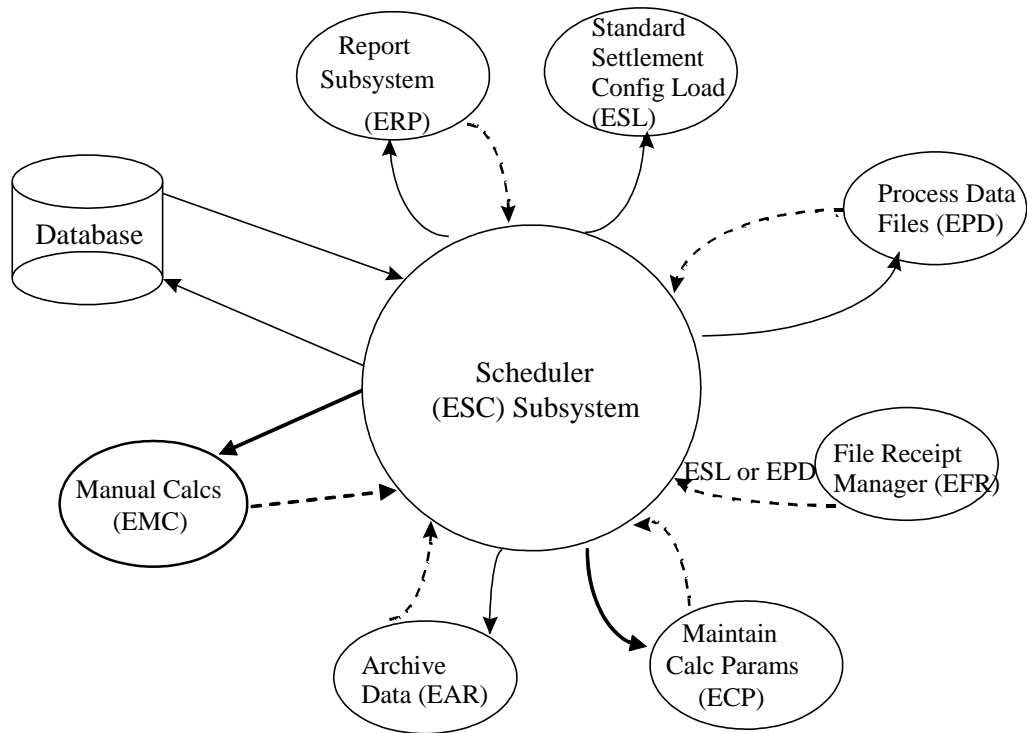


Figure 5: Scheduler Subsystem

(The dashed lines indicate that details of processes to be run being passed to the Scheduler via the database, while the solid lines in the opposite direction indicate process initiation.)

Note that conflicts between processes are not detected by the Scheduler subsystem. If two or more processes require the same resources, then the process that locks those resources takes priority; other processes postpone their processing until the resources are released.

See section 7.4 for further information about batch queues.

Starting and stopping the Scheduler is a manual process. Refer to section 9 for further information.

3.5 ECP Maintain Calculation Parameters Subsystem

This subsystem provides the facility to maintain the parameters that are used by the system in the calculations of Estimated Annual Consumptions, Annualised Advances and Deemed Meter Advances. The subsystem supports maintenance of Standard Settlement Configurations, GSP Group Profile Class Default EAC and Smoothing Parameters, and reporting on Daily Profile Coefficients.

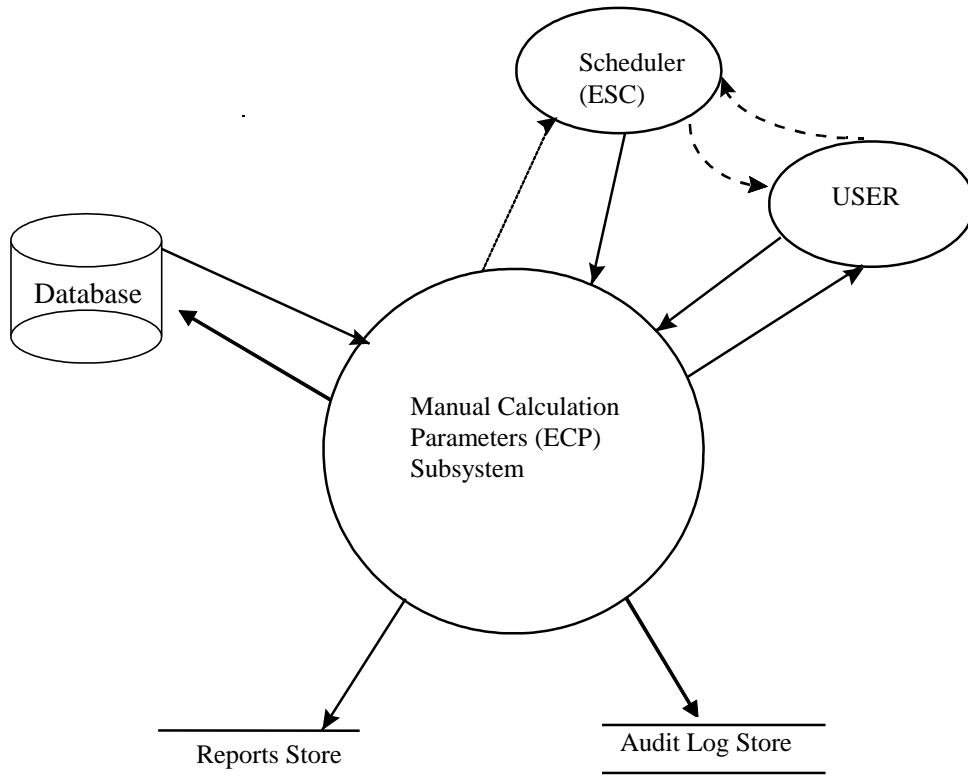


Figure 6: Maintain Calculation Parameters Subsystem

Updates to Smoothing are logged in the Audit Log Store. Refer to section 10.3 for further information about audit logs.

3.6 EAR Archive Data Subsystem

The Archive Data subsystem provides the functionality for the archiving to tape of Daily Profile Coefficients and superseded Smoothing Parameters, and the restoration of reports showing which data has been archived.

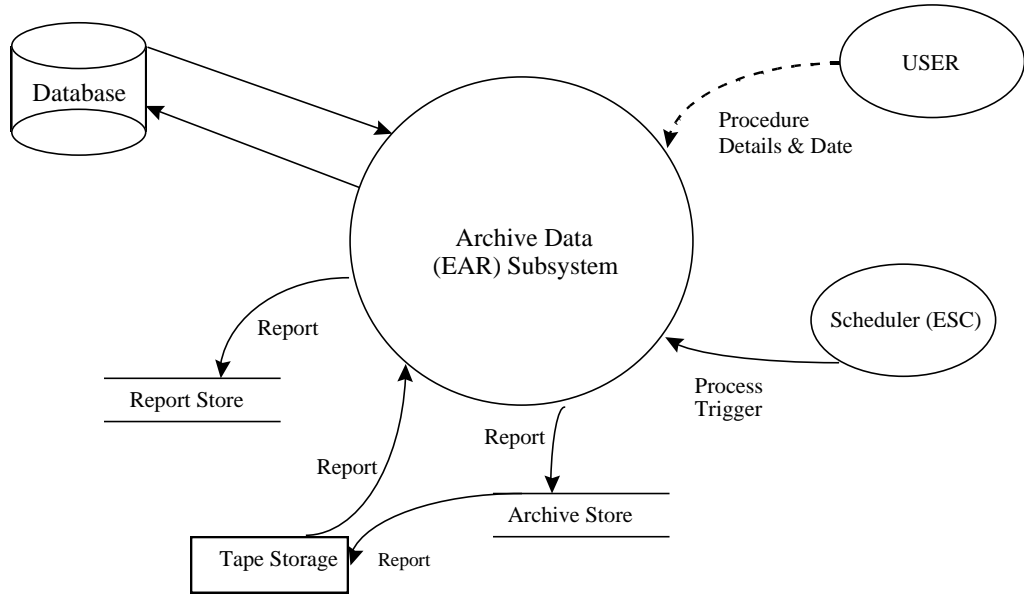


Figure 7: Archive Data Subsystem

For further information about archiving and reporting on archived data, refer to the EAC/AA Operations Guide.

3.7 Report Display (ERP) Subsystem

This subsystem is concerned with the display of human-readable reports, and the creation of human-readable reports from machine-readable reports.

The Report Viewer is the Select Reports form which allows the user to view or print any of the following reports on the client PC:

- EAC/AA Calculation Control Report
- EAC/AA Calculation Exception Report
- EAC/AA Tolerance Value Exception Report
- DMA Calculation Control Report
- DMA Calculation Exception Report
- DPC Load Control Report
- DPC Load Exception Report
- SSC Load Exception Report
- DMR Audit Report
- ECP Report on Daily Profile Coefficients

These ten reports are produced by the system batch processes. Of the ten, the EAC/AA Calculation Exception Report, EAC/AA Tolerance Value Exception Report, DMR Audit Report and the ECP Report on Daily Profile Coefficients are produced in machine-readable form; the others are all produced in human-readable form. The Report Formatter operates on machine-readable report files and formats these, based on information held in the database, to produce human-readable reports. For further information, refer to the EAC/AA Operations Guide.

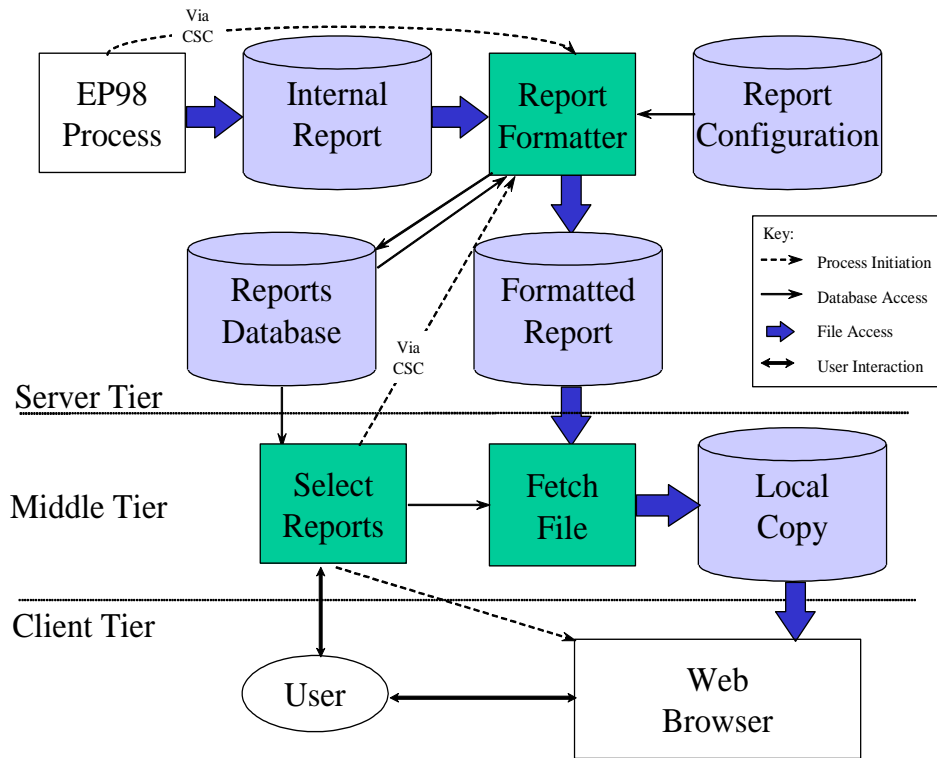


Figure 8: Report Display (ERP) Subsystem

3.8 Manual Calculation (EMC) Subsystem

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.

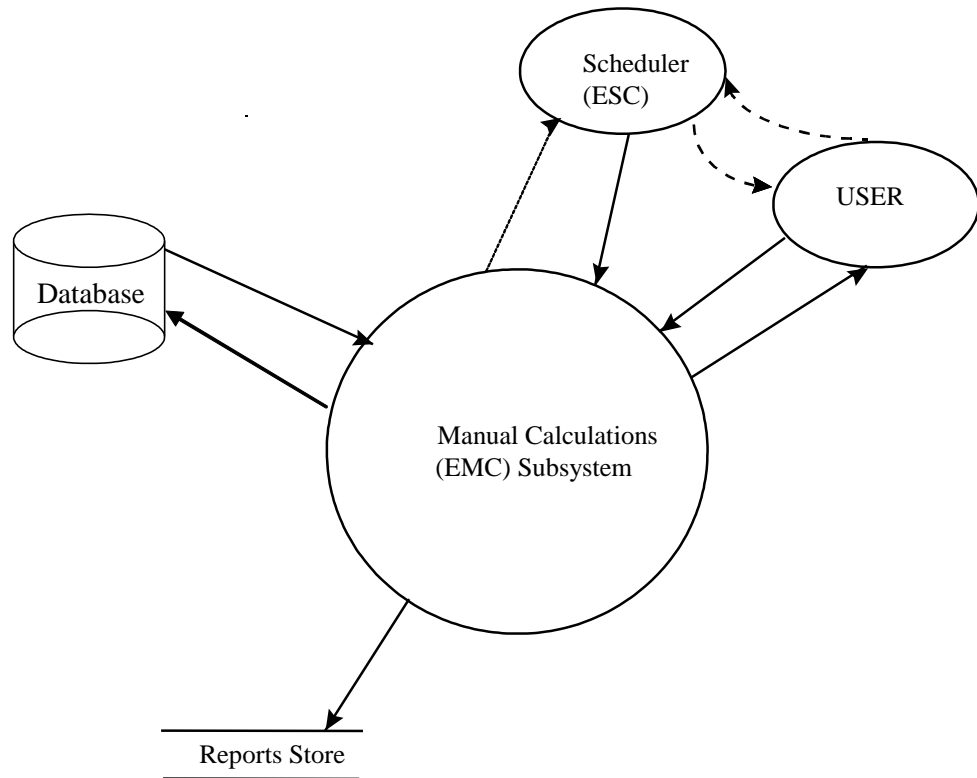


Figure 11: Manual Calculations (EMC) Subsystem

For further information about manual calculation and audit reporting, refer to the EAC/AA Operations Guide.

3.9 User Administration (EUA)_Subsystem

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.

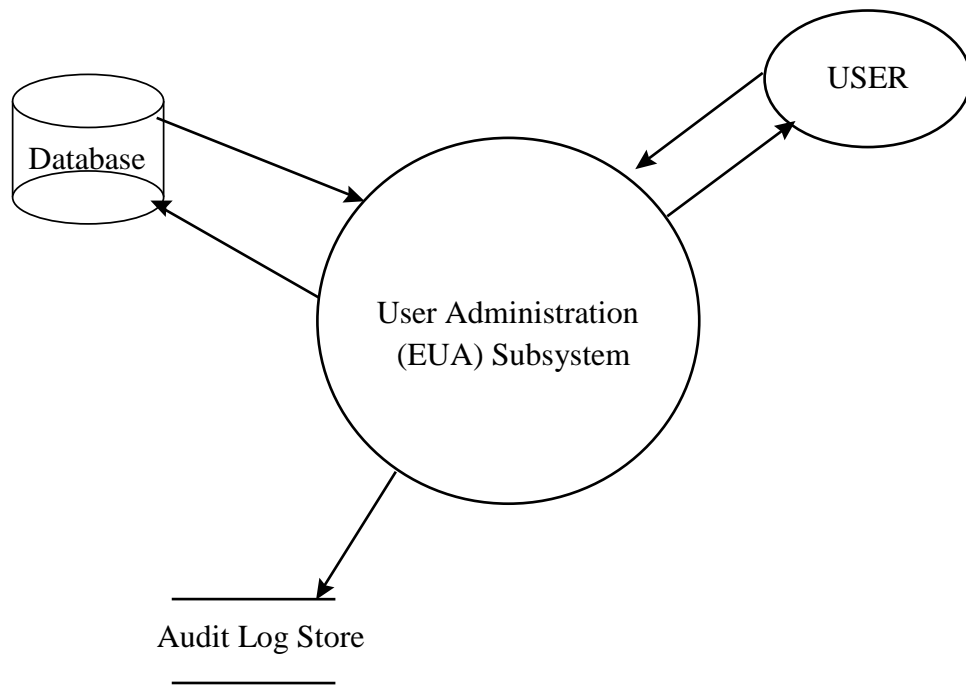


Figure 12: User Administration (EUA) Subsystem

For further information about user administration interfaces, refer to the EAC/AA Operations Guide.

4 Hardware and Software Environment

This section provides an overview of the hardware and software environment required for the EAC/AA application software.

Refer to Appendix C of the EAC/AA Installation Guide for further information about configuration of the EAC/AA environment.

4.1 Hardware

The EAC/AA system comprises a POSIX server and a number of PC clients connected over a local area network. Both 3-Tier and 2-Tier physical configurations are supported. -An overview of the physical architecture for 3-Tier and 2-Tier is given in figure 9 and figure 9a respectively.

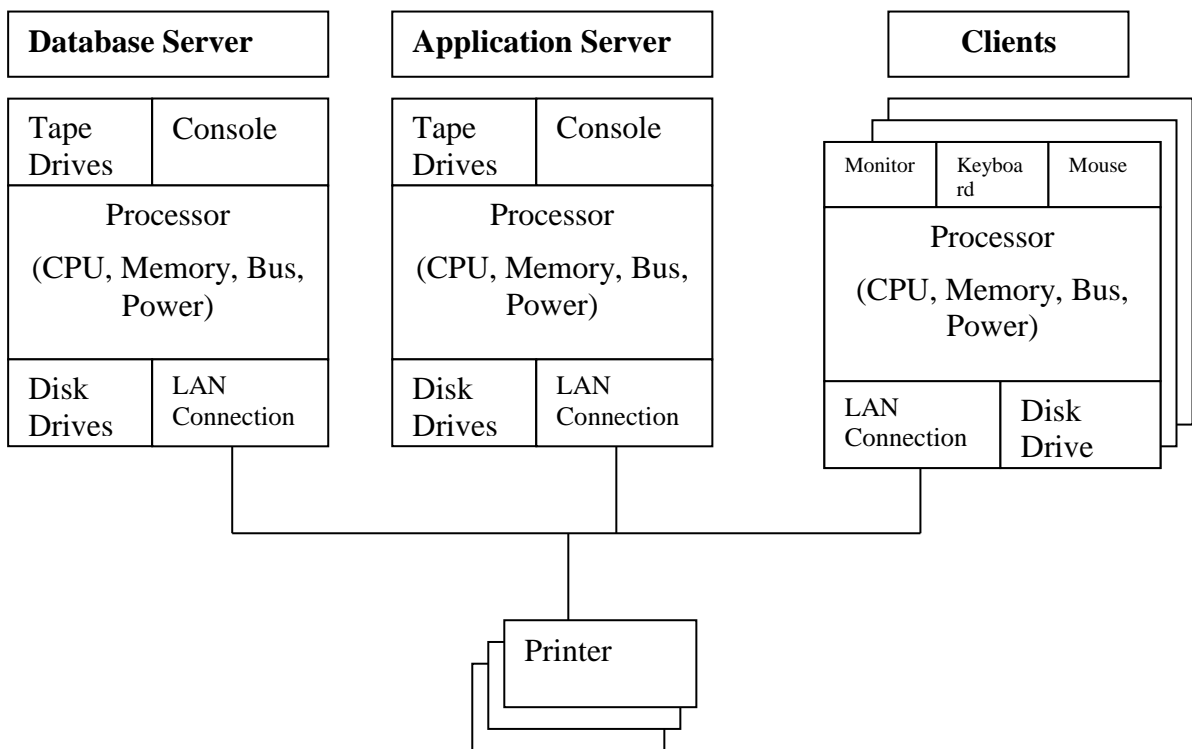


Figure 9: EAC/AA 3-Tier Physical Architecture

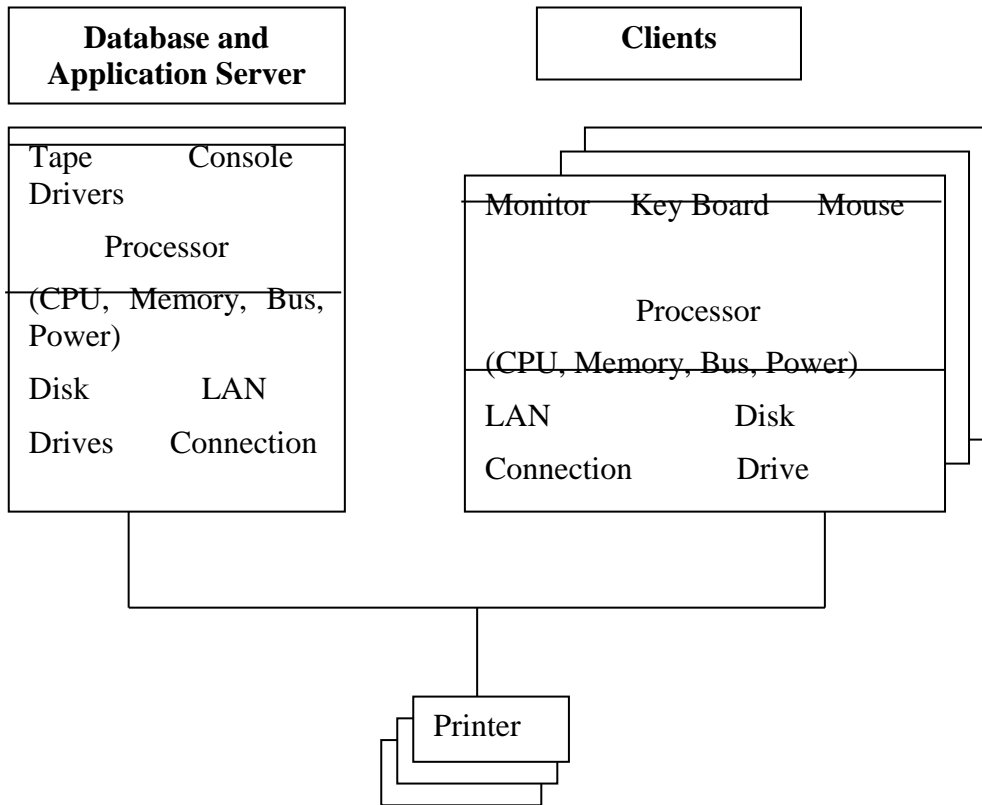


Figure 9a: EAC/AA 2-Tier Physical Architecture

The following comprises a list of the hardware for the EAC/AA 3-Tier and 2-Tier environment:

Server:

- POSIX-compliant server.

Application Server

- Pentium 3.4Ghz or better Processor;
- 1 GB or better Memory;
- 30 GB Disk Space;

Client:

- Any that runs an Operating System and Browser supported by Oracle Application Server.

Note: Use any Browser and Operating System in Client system, which is supported by the Oracle Application Server. Refer to Oracle® Application Server Certification Information 11g Release 1 (11.1.1.6.0) <http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-requirements-100147.html> for 2-Tier Architecture. Refer to Oracle® Application Server Certification Information 11g Release 2

(11.1.2.2.0)<http://www.oracle.com/technetwork/es/middleware/docs/oracle-forms-111220certmatrix-2087910.xls> for 3-Tier Architecture.

4.2 Software

The EAC/AA system server runs an Oracle 11.2.0.3.database with bespoke software written in C and SQL(using embedded SQL statements to interface with the database).

For the 3-Tier application, the Application Server runs Oracle Forms 11G version 11.1.12.62.0 on Microsoft Windows 201203 Server as well as Net10 to enable client - server communication.

For the 2-Tier application, the Application server runs Oracle Forms 11Gversion 11.1.1.6.0on a Sun Solaris Server.

An overview of the software architecture for 3-Tier and 2-Tier is given in Figure 10 and Figure 10a respectively.

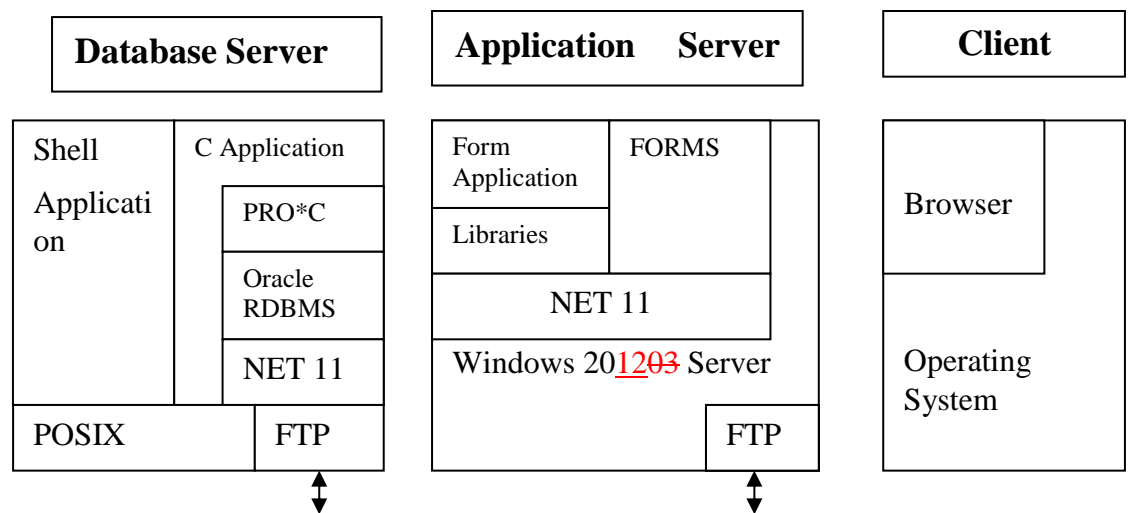


Figure 10: EAC/AA 3-Tier Software Architecture

The following table shows the software products used to support the EAC/AA 3-Tier application software:

Software Component	Host	Version
Operating System	Database Server	Compliant with POSIX standard 1003.1-1990 and POSIX 1003.1b-1993 (C language real time extension). Compliance with POSIX standard 1003.2-1992 for shell scripts. C compiler compliant with ANSI X3.159-1989
Windows 201203 Server	Application Server	Service Pack 1
Oracle Server (includes PL/SQL)	Database Server	11.2.0.3

Software Component	Host	Version
Pro*C runtime	Database Server	11.2.0.3 <i>Runtime deployment is included in original Oracle/Developer license for development</i>
Oracle Forms runtime	Application Server	11.1.2+26.0 <i>Runtime deployment is included in original Oracle/Developer license for development</i>

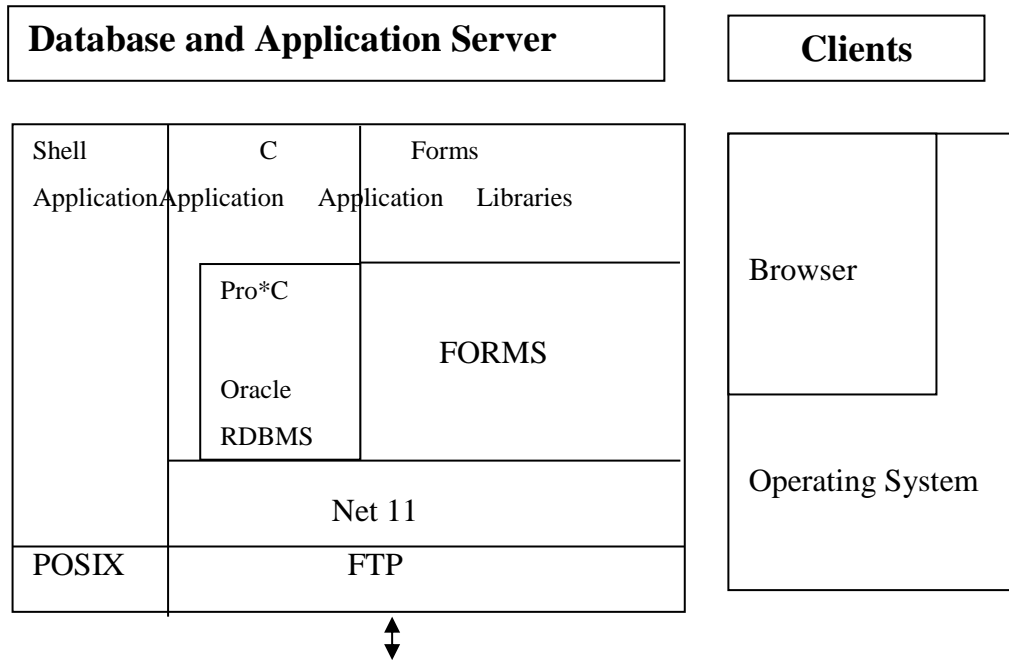


Figure 10a: EAC/AA 2-Tier Software Architecture

The following table shows the software products used to support the EAC/AA 2-Tier application software.

Software Component	Host	Version
Operating System	Database and Application Server	Compliant with POSIX standard 1003.1-1990 and POSIX 1003.1b-1993 (C language real time extension). Compliance with POSIX standard 1003.2-1992 for shell scripts. (C compiler compliant with ANSI X3.159-1989)
Oracle Server (includes PL/SQL)	Database and Application Server	11.2.0.3
Pro*C runtime	Database and Application Server	11.2.0.3 <i>Runtime deployment is included in original Oracle/Developer license for development</i>
Oracle Forms runtime	Database and Application Server	11.1.1.6.0 <i>Runtime deployment is included in original Oracle/Developer license for</i>

Software Component	Host	Version
		<i>development</i>

5 System Parameters

The EAC/AA system has pre-defined data that needs to be set up during installation.

System specific data which identifies the market participant operating the EAC/AA system, and the mode in which the system is running (either Manual or Automatic Mode) is held in the `edb_system_configuration` table. This table contains three fields which must be populated during installation:

- `participant_id`;
- `market_role`;
- `system_mode`.

The details of the executables of EAC/AA procedures are held in the `edb_procedure_codes` table. For each procedure defined in this table, the executable location is given and can be modified. All executable locations reside under the directory specified by the `$EACAA` environment variable.

Environment variables are listed in section 7.3.

For further information about system parameters that can be changed during installation, refer to the EAC/AA Installation Guide, section 2.2.5.4.3.

6 Database Organisation

This section provides an overview of the database in terms of tables and physical files and where they are located. An indication of what each Oracle table contains is given.

The Full Data Dictionary is provided in the EAC/AA Physical Design. It is not duplicated in this document to ensure that the most up to date version of the data dictionary is in use at all times. The Data Dictionary can also be viewed using Oracle.

6.1 Database Sizing

For a database designed to hold 140 million Daily Profile Coefficients, the tablespaces are as follows:

Tablespace	Description	Size
USERS	contains all the EAC/AA tables	8.25 Gbyte
USERS_PK_INDEXES	contains all the EAC/AA primary key indexes	6.00 Gbyte
USERS_FK_INDEXES	contains all the EAC/AA foreign key indexes	2.37 Gbyte

These should be reduced proportionately if a smaller database is required.

By comparison, the rollback and temp tablespaces are relatively small. The system tablespace, control files and redo logs require minimal space.

To calculate the total amount of disc space required, you also need to allow for archive logs - the size of these will depend on the policy developed for managing this aspect of the database.

To optimise performance, it is recommended that the tablespace for the EAC/AA tables, USERS, is created on a different disk to the EAC/AA index tablespaces, USERS_PK_INDEXES and USERS_FK_INDEXES, and on different disks to the TEMP and ROLLBACK tablespaces. This enables Oracle to retrieve both index and table data in parallel. Additionally, the USERS tablespace can be split across more than one disk.

6.2 Database Tables

The EAC/AA database tables are listed below, with a brief description of the data they hold.

Table Name	Description
edb_av_frac_y_cons	Contains the Average Fraction of Yearly Consumption that is attributed to a particular combination of Measurement Requirement, Profile Class and GSP Group.
edb_daily_profile_coefficients	Holds a summary of all Coefficients for a Settlement Day within a GSP Group.
edb_data_files	Stores information about files that have been received by the EAC/AA system, and files that have been generated by the system. For example Daily Profile Coefficient Files, Deemed Meter Advance Files.
edb_ear_adp_status	Tracks status of archive process (contains 1 row)
edb_ear_adp_temp1	Used to store rows to be deleted by the archive

Table Name	Description
	process
cdb_field_headers	Contains details of field headers to be used in formatted reports.
cdb_field_info	Holds details of the fields in the reports.
edb_gspg_pc_def_eac	Contains the Average Estimated Annual Consumption for a GSP Group / Profile Class combination.
edb_jobs	Stores the details of background procedures to be executed by the EAC/AA system.
edb_market_participant_role_codes	Contains definitions of role codes for market participants defined in edb_market_participants
edb_market_participants	Contains definitions of the participants in the Pool Market.
edb_messages	Stores the information, warning and error messages that are reported via the user interface
edb_procedure_codes	Stores details of procedures that can be executed by the EAC/AA system.
cdb_record_info	Holds information on the relationship between records in a report
edb_ref_domains	Specifies the domains that are used by the edb_ref_values table. For example, LOCS is the domain for File Store Locations; FCCO is the domain for File Content Codes.
edb_ref_values	Contains reference data that is defined for a particular domain. For example, the values 1 and E_files_in are defined for the File Receipt Store in the LOCS domain.
edb_report_files	Stores information about control and exception reports that have been produced by the system.
cdb_report_type	Each row contains a report type that can be accessed by users from the PC via the Select Report form.
edb_smoothing_parameters	Holds smoothing parameters and the Settlement Dates from which they are effective.
edb_std_settlement_configs	Contains Standard Settlement Configurations and indicates whether Daily Profile Coefficients will be loaded for each Standard Settlement Configuration.
edb_system_configuration	Defines the Market Participant that is running the EAC/AA system and specifies whether the system is running in Manual or Automatic Mode.
edb_tolerance_values	Holds details of the Annualised Advance Tolerance Values.
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.
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.
edb_dmr_calc_tprs	Holds one record for each Time Pattern Regime entered by the user as part of the input to an Ad

Table Name	Description
	Hoc Deemed Meter Reading Calculation.
edb_dmr_calc_errors	Holds one record for error or warning that was recorded as an Ad Hoc Deemed Meter Reading Calculation ran.
edb_demand_control_event	Holds valid combination of Demand control event id and MSID along with start and end date & time of the event
edb_demand_dis_volume	Holds the Estimated Half Hourly Demand Disconnection Volumes for all HH Metering Systems.
Edb_dpc_bpp	Holds the bpp data received in daily profile coefficient file
edb_dpc_ppc	Holds the ppc data received in daily profile coefficient file

Note that some of these tables contain pre-defined data and are populated during installation. Scripts are provided for the installation of tables, constraints, indexes and sequences. Refer to the EAC/AA Installation Guide, section 2.2.5.4, for further information.

7 System Organisation

This section contains information on the structure of the EAC/AA system in terms of directories and files; lists the environment variables that have been created for the EAC/AA system; describes the batch queues that are used by the Scheduler subsystem.

Refer to Appendix B of the EAC/AA Installation Guide for an example .profile file, which defined paths and environment variables.

7.1 Directory Structure

The directories used by the EAC/AA system are listed below, with a brief description of their use:

Directory Name	File Store	Description
E_files_in	File Receipt	To store files that have been received by the EAC/AA system, but not processed by the File Receipt Manager.
E_files_out	File Dispatch	To store files that are waiting to be retrieved by another system.
E_exception	Exception Reports	To store human-readable exception reports that are generated when the Estimated Annual Consumption/Annualised Advances, Deemed Meter Advance are calculated, and Daily Profile Coefficients and Standard Settlement Configurations are loaded and DMR Audit Report is requested. Note:- The Estimated Annual Consumption/Annualised Advances exception report and the DMR Audit Report are only generated as human-readable reports when the user chooses to view them and are created from the machine-readable versions stored in E_mr_reports.
E_reject	File Reject	To store files containing corrupt or unrecognised data.
E_store	File Store	To store valid incoming files that originally arrived into the E_files_in directory.
E_report	Reports	To store human-readable reports, including control reports.
E_mr_reports	Machine-Readable Reports	To store reports generated in machine-readable form.
E_archive	Archive	To store archived Daily Profile Coefficients and Smoothing Parameters, prior to moving the files to tape.
E_audit	Audit Log	To store audit logs, which record the creation, update and deletion of Smoothing Parameters. It also stores audit logs for creation & dropping of users and granting & revoking of roles through the Maintain Users form.
E_log	Log	To store log files generated by the File Receipt Manager and by processes initiated by the Scheduler, eg. calculation of EACs and AAs, loading of Daily Profile Coefficients, loading of Standard Settlement Configurations.
E_cntl	Control	Stores process ids that are used to stop the EACAA processes
E_transit	Transit	To temporarily store the file currently being processed by the File Receipt Manager, so that: the file is not overwritten by another incoming file if the File Receipt Manager fails, when it is restarted, it

Directory Name	File Store	Description
		can complete processing of the file that was in the E_transit directory when the process failed

These directory names are stored in the edb_ref_values database table, in the domain LOCS. The directory names can be modified, but the corresponding numeric values are fixed. For example, the E_files_out directory name could be modified to E_output, but its corresponding number, 2, cannot be changed. Changes to these directory names can be made using Interactive SQL on the database table.

Each of these directories is located directly under the directory identified by the \$EACAA environment variable, which can be defined at the time of system installation. See section 7.3 for further information about environment variables. Note that the \$EACAA environment variable cannot be null. Note also that soft links can be created from these directories to the required physical location of the EAC/AA files.

When the scheduler starts, the value of \$EACAA is written to the eacaa_root_dir column of the edb_System_configuration_table, and a log file recording this action is written to the \$EACAA/E_log directory.

The E_audit directory contains the audit log file, audit.log to store the changes to Smoothing Parameter and Application Users. LOCS domain entry 5 of the edb_ref_values table defines both the directory name (E_audit) and the filename (audit.log) of the audit log.

In addition to the directories given in the table above, another directory, bin, is located under the directory defined by the \$EACAA environment variable. This bin directory is used to store application software executables, and scripts that are required for starting and stopping the Scheduler and File Receipt Manager processes.

It is possible to store these directories and the Operating System files stored in them, such as reports and logs, on a different disk to the EAC/AA database. This can be achieved by using Operating System functionality to create soft links from the EAC/AA directories listed in the previous table, eg. E_report, to the actual locations of the files.

Note that the physical location and implementation of all directories will be dependent on the target environment and installation of the application software.

7.2 File Names and Locations

The table below lists the output, exception and control files that are generated by EAC/AA processes, the format of their file names and their location.

File	File Name Format	File Location
Deemed Meter Advance Output File	<role><participant id><sequence>	E_files_out

File	File Name Format	File Location
Deemed Meter Advance Exception Report	<role>EXCPT<sequence>	E_exception
Deemed Meter Advance Control Report	<role>CNTRL<sequence>	E_report
EAC/AA Output File	<role><participant id><sequence>	E_files_out
EAC/AA Exception Report (Machine Readable)	<role>EXCPT<sequence>	E_mr_reports
EAC/AA Exception Report (Human Readable)	H<role>EXCPT<sequence>	E_exception
EAC/AA Tolerance Values Exception Report (Machine Readable)	<role>EXCPT<sequence>	E_mr_reports
EAC/AA Tolerance Values Exception Report (Human Readable)	H<role>EXCPT<sequence>	E_exception
EAC/AA Control Report	<role>CNTRL<sequence>	E_report
Load Standard Settlement Configuration Exception Report	<role><participant id><file name sequence>	E_exception
Load Daily Profiles Control Report	<role>CNTRL<sequence>	E_report
Load Daily Profile Exception Report	<role>EXCPT<sequence>	E_exception
Report on Archived Data	R< role><participant id><settlement_date>	E_archive
DMR Audit Report File (Machine Readable)	EAUD<sequence>	E_mr_reports
DMR Audit Report File (Human Readable)	HEAUD<sequence>	E_exceptions
Daily Profile Coefficient Report File (Machine Readable)	ECP<sequence>	E_mr_reports
Daily Profile Coefficient Report File (Human Readable)	HECP<sequence>	E_exceptions

<role> is retrieved from edb_system_configuration table (char(1))

<participant id> is retrieved from edb_system_configuration table (char(4))

<sequence> is generated by edb_file_seq (an Oracle sequence generator) (number(9))

<file name sequence> is generated by edb_file_seq (an Oracle sequence generator) (number(9))

<settlement_date> is the settlement date for which the archived Daily Profile Coefficient data is applicable, in the form yyyyymmdd

The following file naming convention has been used for incoming and outgoing files:

- unique filenames across all possible sources and destinations;
- 14 characters or less, for POSIX compliance.

In addition, outgoing files only have the following format:

<market participant role code><market participant id><9 digit sequence number>

where the <market participant role code> is 'D', the <market participant id> is retrieved from the edb_system_configuration database table and <9 digit sequence number> is obtained from edb_file_seq (an Oracle sequence generator).

Incoming and outgoing files are stored in the File Receipt Store and File Dispatch Store directories respectively.

7.3 Environment Variables

The following environment variables need to be defined. The EACAA and ORACLE_SID are defined during installation. Refer to the EAC/AA Installation Guide for further information about setting these.

Environment Variable	Description
EACAA	Directory under which directories listed in section 7.1 reside
ORACLE_SID	Oracle database id - the value of this is eacaa
TAPE_DRIVE	Identifies the device name of the tape for archiving of Daily Profile Coefficients and superseded Smoothing Parameters

The following environment variables can be defined to override default settings:

Environment Variable	Description
EACAA_CNTL_DIR	Defines the directory where the control file for each of the process daemons EFR_FRM (File Receipt Manager) and ESC_BQD (Scheduler) is created. If this environment variable is not defined then the control files are created in the default directory '/tmp'.
EFR_FRM_LOCK	Defines the name of the lock that the File Receipt Manager (EFR_FRM) takes out when running. If not defined, a default lock name of 'EFR_FRM_LOCK' is used.
ESC_BQD_LOCK	Defines the name of the lock that the Scheduler (ESC_BQD) takes out when running. If not defined, a default lock name of 'ESC_BQD_LOCK' is used.

These environment variables can be amended using standard operating system functionality.

Note that only one copy of the Scheduler and one copy of the File Receipt Manager should be running at any one time.

7.4 Batch Queues

Batch queues are initiated by the Scheduler subsystem, which is started and stopped manually. Batch queues are identifiable by the name of the procedure for which they are used, which is located in the edb_procedure_codes database table. For example, the batch queue for loading Standard Settlement Configuration files is esl_lsc.

7.4.1 Queue Limits

The database table `edb_procedure_codes.queue_limit` defines, for each type of Procedure, the maximum number of Procedures that can be run concurrently. The `queue_limit` value can be amended for procedures that perform calculations, such as Deemed Meter Advance, Deemed Meter Reading and EAC/AA, also for the report formatter procedure.

However, the `queue_limit` for archiving and loading procedures must not be modified, as this will result in conflicts.

If the maximum number of jobs for a particular procedure is running, then no further instances of that procedure can be run. Any further jobs wait until one of the running jobs has completed.

If the value of `queue_limit` is increased beyond the value of 1 for the EAC/AA or DMA or DMR calculation processes, the number of concurrent calculation processes will increase accordingly. On a dedicated multi-processor server, the processes will run on the additional processors. For example, on a load balanced dedicated four processor server, if the `queue_limit` for the EAC/AA calculation is increased to 3, in the absence of any other processes the Oracle process will run on one of the processors and the concurrent calculation processes will run on the other three processors.

7.4.2 Batch Jobs

The database table `edb_jobs` stores details of batch jobs to be executed by the EAC/AA system. The possible statuses of jobs in the table are:

- R : job is running;
- W : job is waiting execution;
- F : job failed during execution;
- C : job completed successfully;
- X : job completed with exceptions.

The Scheduler polls the table `edb_jobs` at regular intervals, the interval being defined in the `edb_ref_values` database table where the `domain_code` is 'POLL' and 'VALUE_FROM' is 1.

Upon restarting after system or Scheduler failure, the `edb_jobs.job_status` of all running jobs (identified by 'R') is set to waiting, identified by 'W'. When the Scheduler restarts, waiting jobs are queued by the Scheduler. The effects of rescheduling different types of jobs are discussed in section 12.1.3.

8 User Accounts, Privileges and Security

The EAC/AA system provides three levels of security:

- Server Operating System;
- Oracle database tables;
- Oracle forms.

8.1 Server Operating System

Access to the server operating system is controlled through user accounts consisting of a username and password using operating system functionality.

The EAC/AA Installation Guide defines the Operating System Users that need to be set up during installation of the system.

8.2 Oracle Database Tables

Standard Oracle account names and passwords are used for two aspects of system security:

1. To ensure that only valid EAC/AA users have access to the EAC/AA system;
2. To assign each EAC/AA user type with appropriate privileges for Oracle objects such as tables and views.

The following EAC/AA user roles are Oracle roles and are defined by default in the EAC/AA system:

- EAC/AA System Operator;
- EAC/AA Operations Supervisor;
- EAC/AA System Manager;
- EAC/AA Auditor.

Each user can be assigned one or more of the EAC/AA roles.

Each EAC/AA role has a combination of Create, Read, Update or Delete privileges for each table to which the role has been granted access. A user has access to the database tables according to the combined privileges of the assigned roles. The Oracle user needs read-only access to several directories. These directories are detailed in the EAC/AA Installations Guide under section 2.2.4.1 “File Permissions”.

The Maintain Users Oracle form can be used to grant or revoke above Oracle roles at the time of user creation and also after the user is created by editing the user.

It is not recommended that Oracle OPS\$ accounts be used to access the EAC/AA application software, due to the risks of unauthorised access if user PCs are left unattended at any time. However, operationally it may be appropriate for system management staff to use OPS\$ accounts.

8.3 Oracle Forms

Each EAC/AA user role is assigned specific menus on the EAC/AA user interface, as shown in the following table:

EAC/AA User Role	Available Menus	Available Functions	
System Operator	Process Files	Process Data Files, if using Manual Mode	
	Maintain Parameters	Smoothing Parameters (browse only)	
			GSP Group Profile Class Default EAC(browse only)
			Identify Input Files
			Latest DPC Settlement Date
			Report on Profile Coefficients
	Reports	Select Reports	
Operations Supervisor	Process Files	Process Data Files, if using Manual Mode	
	Maintain Parameters	Smoothing Parameters	
			GSP Group Profile Class Default EAC(browse only)
			Identify Input Files
			Latest DPC Settlement Date
			Report on Profile Coefficients
			Standard Settlement Configurations
	Reports	Select Reports	
		Manual Calculations	Ad Hoc DMR Calculation
			Ad Hoc DMR Audit Report
System Manager	Archive and Restore	Archive Profile Coefficients	
		Restore Profile Coefficient Report	
	Reports	Select Reports	
	User Administration	Maintain User	
System Auditor	Maintain Parameters	Report on Profile Coefficients	
	Reports	Select Reports	
	Manual Calculations	Ad Hoc DMR Audit Report	

Note: For all the 4 Oracle Roles “Change Password” Oracle Form is available in File menu.

8.4 Password Management Through Oracle Profile

The “PROF_EACAA” profile is defined with password management attributes to control access to the system depending on the status of password. This is assigned to all users created through the Maintain User Oracle form.

8.5 Maintain Users

To enable access to the EAC/AA application software an Oracle user account is required. A new user account can be created either through “Maintain User” Oracle Form or by creating the user manually using below steps:

1. Create a new Oracle account for the user, if the user does not already have one;
2. Assign one or more of the EAC/AA User Roles to the user, as listed in section 8.2. The user will have access to database tables and Oracle forms according to the combined user roles.
3. Assign the “PROF_EACAA” profile to the user to apply the password management properties.

The Maintain Users Oracle form also offers the functionality to edit the users to control their access by changing their status to Locked/Unlocked or Expired/Unexpired. Edit user functionality also can be used to grant and/or revoke the application roles.

8.6 Monitoring Operating System and Database Access

Auditing can be enabled via the Database or Operating System. Consult system-specific Oracle documentation about the Operating Systems to determine if it allows the latter. Any user attempting to use the AUDIT command must have AUDIT SYSTEM privilege. The Initialisation parameter AUDIT_TRAIL must be set in the database initialisation file, initeacaa.ora, to “OS” for the Operating System option. An example of the initeacaa.ora file is provided on the installation tape.

The audit trail (SYS.AUD\$) is a single table in the data dictionary. The table itself should be protected by the following statement:

```
AUDIT INSERT, UPDATE, DELETE ON SYS.AUD$ BY ACCESS;
```

To audit all successful and unsuccessful connections to and disconnections from the database, regardless of user, execute the following command:

```
AUDIT SESSION;
```

To audit all unsuccessful SELECT, INSERT, and DELETE statements on all tables, execute the following command:

```
AUDIT SELECT TABLE, INSERT TABLE, DELETE TABLE  
BY ACCESS  
WHENEVER NOT SUCCESSFUL;
```

9 Starting Up and Shutting Down the System

This section describes the steps required to start up and shutdown the EAC/AA system in a controlled manner. Where steps involve non-application specific functionality, you are referred to the appropriate documentation.

9.1 Starting the System

To start up the EAC/AA system, the following tasks should be performed in the order shown:

1. Start up the database;
2. Start up the Network Listener;
3. Start up the Scheduler;
4. Start up the File Receipt Manager;
5. Access the system from the PC.

9.1.1 Starting the Database

Log on as the Oracle user who has 'dba' group access privileges. Start the database by executing the *dbstart* script, which is located in the \$ORACLE_HOME/bin directory.

9.1.2 Starting the Network Listener

Logged on as the 'dba' Oracle user, type in the command:

```
lsnrctl<CR>
```

and then

```
start<CR>
```

9.1.3 Starting the Scheduler

The Scheduler is started manually by executing the *esc_bqd_start* shell script, which is stored in the \$EACAA/bin directory, where \$EACAA is an environment variable, (see section 7.3 for information about environment variables).

9.1.4 Starting the File Receipt Manager

The File Receipt Manager is started manually by executing the *efr_frm_start* shell script, which is stored in the \$EACAA/bin directory, where \$EACAA is an environment variable, (see section 7.3 for information about environment variables).

9.1.5 Access EAC/AA from the PC

Double-click on the icon from the PC.

9.2 Shutting Down the System

To shut down the EAC/AA system in a controlled way, you should perform the following tasks:

1. Stop the Scheduler;
2. Stop the File Receipt Manager;

3. Shut down the database using standard Oracle functionality.

9.2.1 Stopping the Scheduler

To stop the Scheduler, run the *esc_bqd_stop* shell script, from the \$EACAA/bin directory.

If one or more scheduled jobs are currently running, these jobs are completed before the Scheduler stops.

Any batch jobs that are queued to be initiated by the Scheduler remain queued and are started once the system is restarted.

9.2.2 Stopping the File Receipt Manager

To terminate the File Receipt Manager, use the *efr_frm_stop* script, which is accessible from the \$EACAA/bin directory.

If a file is currently being loaded into the EAC/AA system by the File Receipt Manager, then the current file is processed before the File Receipt Manager is stopped.

9.2.3 Shutting Down the Database

Shut down the database by executing the script *dbshut*, located in the \$ORACLE_HOME/bin directory.

10 Monitoring the System

You can make use of the following to monitor the EAC/AA system:

- all EAC/AA batch processes write messages to logs;
- batch processes generate control reports and exception reports;
- changes to Smoothing Parameter data and changes to users done by Maintain User Oracle form are recorded in the Audit Log;
- checking directories that hold files, as listed in section 7.1.

10.1 Scheduler and File Receipt Manager Logs

The Scheduler generates its own log, *esc_bqd_<process_id>.log*. This log is created in the E_log directory.

The Scheduler also generates logs for the batch jobs that it handles, *job_<job_id>_<process_id>.log*. These logs are created in the E_log directory.

The File Receipt Manager generates a log, *efr_frm_<process_id>.log* which logs files that are received by the EAC/AA system. The <process_id> is the process id of the File Receipt Manager process. This log file is created in the E_log directory.

The messages that may appear in these logs are listed in Appendix A.

10.2 Control, Exception and Audit Reports

Control and exception reports are generated by the following batch processes:

- Load Daily Profile Coefficients;
- Determine Deemed Meter Advance;
- Calculate EAC/AA.

An exception report is generated by the following batch process:

- Load Standard Settlement Configuration file.

An audit report is generated by following Oracle form:

- Ad Hoc DMR Audit Report.

Machine-readable reports are stored in the E_mr_reports directory. Human-readable control reports are located in the E_report directory and human-readable exception and audit reports are stored in the E_exception directory. The human readable reports are viewable from the client PC using the Select Reports function. For further information about, and examples of control and exception reports, refer to the EAC/AA Operations Guide.

These reports will need to be archived periodically from the directories. The frequency with which this task is performed should be defined in an operational policy, and will depend on a number of aspects, such as number of reports generated and other demands on disk space.

10.3 Smoothing Parameter Audit Log

An audit log is created in the Audit File Store (E_audit), for the purposes of logging updates to Smoothing Parameters. Amendments to Smoothing Parameters are recorded as follows:

```

Insert      (<EAC/AA      UserName>|<Date|I|<Smoothing
Parameter>|<Settlement Date>)

Update     (<EAC/AA      UserName>|<Date|A|<Old      Smoothing
Parameter>|<Old Settlement Date>)

Delete     (<EAC/AA      UserName>|<Date|D|<Old      Smoothing
Parameter>|<Old Settlement Date>)

```

where Date & Settlement Date are in the format DD/MON/YYYY.

The audit log file produced is a read-only file, which can be searched using operating system tools such as 'grep' and 'vi'.

10.4 Maintain User Audit Log

An audit log entry is created/appended to the audit log file in the E_Audit directory for the following operations: Create user, Drop user, Grant role(s) to the user and Revoke role(s) from the user. This is performed through Maintain User Oracle Form. Bespoke operations are recorded as follows:

```

Create      User      (<EAC/AA      UserName>|<Date>|C|<User
affected>|NONE)

Drop User   (<EAC/AA      UserName>|<Date>|D|<User affected>|NONE)

Grant Role (<EAC/AA      UserName>|<Date>|G|<User affected>|Role
Name)

Revoke Role (<EAC/AA      UserName>|<Date>|R|<User affected>|Role
Name)

```

10.5 Directories

You can check the contents of the directories listed in section 7.1 using operating system functionality. For further information on the naming convention used for files contained in these directories, refer to section 7.2.

11 Archive and Restore

The Archive Daily Profile Coefficients function (described in the EAC/AA Operations Guide), carries out the following functions:

1. deletes from the database those `edb_daily_profile_coefficients` records which apply to Settlement Dates older than the date entered by the user;
2. updates those `edb_data_files` records which record the files from which the deleted `edb_daily_profile_coefficient` records were loaded, so that the `file_status` field is set to 'A' (for 'Archived');
3. deletes from the database those `edb_smoothing_parameters` records which apply only to Settlement Dates older than the date entered by the user;
4. creates a report listing the contents of the deleted `edb_daily_profile_coefficients` and `edb_smoothing_parameters` records and writes this report to a tape ("archives it"). This report (but not the database records themselves) can be restored from the tape by the Restore Daily Profile Coefficients Report function (described in the EAC/AA Operations Guide);
5. deletes from the database `edb_data_files` records for files of types L003001 (human-readable report), L0041001 (machine-readable EAC/AA Exception Report) and L0042001 (machine-readable EAC/AA Tolerance Values Exception Report), whose creation dates are older than a fixed number of days before the current date. The L003001 records are not deleted if they are generated from L0045001 or L005000 machine-readable reports, since these are not deleted themselves. The fixed number of days is given by a parameter in the 'ARCH' domain in the `edb_ref_values` table. There are separate parameters for Control Reports and Exception Reports, and both are set to 90 days at installation time. The contents of the deleted `edb_data_files` records are not included in the report written to tape;
6. deletes from the database those `edb_report_files` records which are child records of the records described in point 5 above.

Note that the result of steps 5 and 6 on the reports whose `edb_data_files` records have been deleted can no longer be viewed using the Select Reports function. The report files do however remain on the server.

In addition to the functionality provided by EAC/AA, some manual archiving / housekeeping is necessary to control the build up of `edb_data_files` records in the database and of files in the directories under the \$EACAA directory.

The EAC/AA system stores `edb_data_files` records for the file types listed in the following table:

File Type	Description	Notes
D0039001	DPC File	never deleted by EAC/AA system; file status set to 'A' when child edb_daily_profile_coefficient records are deleted
PERQ_001	EAC/AA calculation request file	Never deleted by EAC/AA system
PEEX_001	EAC/AA calculation results file	Never deleted by EAC/AA system
PDRQ_001	DMA calculation request file	Never deleted by EAC/AA system
PDEX_001	DMA calculation results file	Never deleted by EAC/AA system
L0003001	Human-readable reports file	deleted by EAC/AA Archive function after the number of days given by parameter in ARCH domain of edb_ref_values, unless it is generated from an L0045001 or L0050001 in which case it is never deleted
L0041001	Machine-readable EAC/AA Exception Report file	deleted by EAC/AA Archive function after the number of days given by parameter in ARCH domain of edb_ref_values
L0042001	Machine-readable EAC/AA Tolerance Values Exception Report file	deleted by EAC/AA Archive function after the number of days given by parameter in ARCH domain of edb_ref_values
L0045001	Machine & Human readable Ad Hoc DMR Calculation Audit Report Files	Never deleted by EAC/AA system
L0050001	Machine & Human readable Daily	Never deleted by EAC/AA system

	Profile Coefficient Report File	
D0375001	Disconnected MSIDs and Estimated Half Hourly Demand Volumes	deleted by EAC/AA Archive function after the number of days given by parameter in ARCH domain of edb_ref values
P0238001	MSIDs affected by Demand Control Event	deleted by EAC/AA Archive function after the number of days given by parameter in ARCH domain of edb_ref values
D0018001	Daily Profile Data Report	deleted by EAC/AA Archive function after the number of days given by parameter in ARCH domain of edb_ref values

The User Organisation should draw up procedures to archive the records in the edb_data_files table for the file types D0039001, PERQ_001, PEEEX_001, PDRQ_001, PDEX_001, L0045001, L0050001 and the remaining L0003001 after a certain time. The records for D0039001 files must not be archived unless their status has been set to 'A' (archived).

Also the User Organisation should draw up procedures to archive the records in the DMR Calculation results tables.

Files that are stored in the directories identified in section 7.1, such as E_report and E_audit, should be archived or deleted manually, according to procedures set out by the User Organisation. The frequency of manual archiving is at the discretion of the System Manager. Procedures for archiving edb_data_files records from the database should be considered together with procedures for archiving the files to which those records refer.

12 Backup and Recovery

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

Section 12.1 outlines the functionality provided by the EAC/AA application software that supports backup and recovery. Section 12.2 provides guidelines on operational tasks that can be performed at the user site, to protect against loss of data.

12.1 Application Software Functionality Supporting Backup and Recovery

12.1.1 Checkpointing

The Oracle database will run in ARCHIVELOG mode. This means that “redo” logs, containing information relating to changes in the database, are automatically copied to an archive area on the disk, enabling recovery of the database.

No manual intervention is required to generate these logs.

For further information relating to ARCHIVELOG and redo logs, refer to the Oracle11g Administrator’s Guide and Oracle11g Concepts. Both of these are supplied on a CD with the Oracle Distribution Kit.

12.1.2 Recovery from 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 operating system first recovers the disks (this may require manual intervention). 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 manually).

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

File receipts handled by the File Receipt Manager (EFR), that were in progress at the time of failure, will be cleaned up by the process itself upon restart.

12.1.3 Recovery from Fatal Errors

This section outlines recovery after failure of an individual process due to a localised hardware failure or a fatal error during processing. The database is recovered to the state it was in prior to failure, excluding any transactions that were in progress at the time of the failure. Any files that were open are closed.

If one of the batch jobs is interrupted, the job is automatically rescheduled by the Scheduler process once it is restarted. Re-running batch jobs has the following implications:

- the results of EAC/AA and DMA calculations are generated twice, with no adverse effect;
- for loading of Profile Coefficients, the impact of re-running the job depends on the type of the file being loaded:
 - if the file is of Type 1, (the file contains data for all GSP Groups), then the file is reloaded;
 - if the file is of Type 2, (the file contains data for only one GSP Group), then the file is rejected;
- reporting on Archive data is duplicated, with no adverse effect;
- loading of Standard Settlement files is duplicated, with no adverse affect;
- if Daily Profile Coefficients are being archived, then the process cleans itself up when it restarts prior to archiving the data.
- machine-readable reports are converted to human-readable reports twice, with no adverse effect

12.2 **Guidance on Operational Aspects of Backup and Recovery**

It is the responsibility of the User organisation to develop a policy for backup of the data held by the EAC/AA system. It is important to strike a balance between the time it takes to back up parts of the system, against the potential loss of not having backed them up if the system fails. This section provides guidelines on several aspects of such a policy.

12.2.1 **Storage of Redo Logs**

It is recommended that the archive area for holding the redo logs, and the Oracle database tables, are on separate media, to ensure that after any single media failure, the database can be recovered using a combination of backups, redo logs and the database itself. Furthermore, if a redo log is lost due to media failure, the database is exposed to any further media failure until the next backup. It is therefore advisable that the redo logs are duplicated, either using RAID mirroring or Oracle Redo log mirroring.

Backup procedures should include the redo logs.

12.2.2 **On-line and Off-line Backups**

A possible backup strategy is based around a weekly off-line “cold” database backup and daily on-line “hot” backups. In the event of a database failure, the daily backups can be used to bring the database back to the consistent state at the time of failure.

It is recognised that carrying out on-line backups may have performance implications. Therefore, it is suggested that on-line backups are performed at a time within the daily schedule when user demands on the system are low. For example, at the end of the daily processing cycle.

For on-line backups, a non-rewind tape device must be used.

Both on-line and off-line backups should include:

- redo logs;

- database files;
- control files.

It is recommended that a weekly Operating System backup is performed as an insurance against loss of data through corruption or hardware failure. For further information about shutting down the EAC/AA system prior to an off-line backup, refer to section 9.2.

12.2.3 Media (disk) Failure

In the event of failure of one of the system's disks, redo logs and backups can be used to recover the system to its state prior to the failure.

If the database disk or disks fail, the database tables affected by the failure can be recovered from backups and redo logs.

Loss of the redo log disks does not immediately impact the integrity of the system. However, a backup of the database at the earliest opportunity is recommended, to minimise losses resulting from further failures.

12.2.4 Disaster Recovery

Disaster recovery may well require the use of an alternative machine or alternative site, depending on disaster recovery plans in place. Such recovery is started from the latest backups available, hence the need for safe storage of backups.

13 System Management of Application Server

13.1 Remove the Old Report Files

In order to avoid space bottleneck on the Application server, the Old Report files needs to be deleted from the Reports directory at a regular interval.

Note:- Report files should always be deleted in the event of a database import or restore occurring on the database server. This is to prevent later produced report files having the same file name as any reports produced prior to the import/restore. Where such a conflict occurs, only the earlier reports would be visible to the user, which may not contain the expected data.

Appendix A Application Error Messages in EAC/AA Logs

Error messages that may be generated by the EAC/AA application software, in log files, are given below.

Note that error messages for underlying products, such as Oracle, are not shown.

A.1 Scheduler Log

The following error messages may be displayed in the logs created by the Scheduler:

DMA Errors

Allocating %d DMA records.
 Bad command line.
 Bad file type %s, expecting %s.
 Bad record type at line %d, expecting MSI or FTR.
 Bad record type at line %ld.
 Bad record type for header %s, expecting %s.
 Calculating DMA.
 (Failure of DMA calculation due to non-business rule related error)
 Checksum at line %ld position %ld.
 Code %d returned by dma_get_daily_profile_coefficient.
 EAA record EAC/AA value at line %ld position %ld.
 EAA record found before a GSP at line %ld.
 EAA record found before a PCI at line %ld.
 EAA record time pattern regime at line %ld position %ld.
 EAA record type at line %ld position %ld.
 End of file at line %ld.
 Failed adding missing date.
 Failed processing file.
 Failed to delete exception file %s, errno is %d.
 Failed to initialise application.
 Failed to open control file %s, errno is %d.
 Failed to open exception file %s, errno is %d.
 Failed to open file %s.
 Failed writing to control file.
 Fclose
 (Unable to close output file)
 fgets at line %ld.
 Fgets failed, errno %d at line %ld
 Footer record type at line %ld position %ld.
 Fprintf at line %d printing text %s
 ftell failed, errno %d
 GSP record found after EAA at line %ld.
 GSP record found before PCI at line %ld.
 GSP record from date at line %ld position %ld.
 GSP record GSP group at line %ld position %ld.

GSP record type at line %ld position %ld.
GSP records do not cover MSI range, first GSP=%s, range start=%s at line %d.
Invalid job %s specified on command line.
Invalid option %c ignored.
Line %ld is too long.
MSI from date at line %ld position %ld.
MSI metering system at line %ld position %ld.
MSI record type at line %ld position %ld.
MSI std sett configuration at line %ld position %ld.
MSI to date at line %ld position %ld.
No job specified on command line.
No memory for %d missing dates.
No memory for %ld PCI records at line %ld.
No memory for EAA list.
No memory for GSP list.
No memory for PCI list.
No memory on GSP record.
No records to process at line %d.
PCI record found after a GSP at line %ld.
PCI record found after EAA at line %ld.
PCI record from date at line %ld position %ld.
PCI record profile class at line %ld position %ld.
PCI record type at line %ld position %ld.
PCI records do not cover MSI range, first PCI=%s, range start=%s at line %d.
Reading EAA record at line %ld.
Reading GSP record at line %ld.
Reading PCI record at line %ld.
Record count record type at line %ld position %ld.
Unable to create new edb_data_files record
Unable to create new edb_report_files record
Unable to get next value of edb_file_seq
Writing DMA record.
Writing MSI record.

EAC Errors

AA value %f is too large.
Allocating %d EAC records.
Bad command line.
Bad file type %s, expecting %s.
Bad record type at line %d, expecting MSI or FTR.
Bad record type at line %d.
Bad record type at line %ld.
Bad record type for header %s, expecting %s.
Calculating EAC.
(Failure of EAC calculation due to non-business rule related error)

Cannot find range of reasonable AA values for GSP %, PC %
Code %d returned by eac_get_daily_profile_coefficient.
EAC Fatal Error Messages: "Checksum at line %ld position %ld.
EAC value %f is too large.
End of file at line %ld.
Failed adding missing date.
Failed processing file.
Failed to delete exception file %s, errno is %d.
Failed to initialise application.
Failed to open control file %s, errno is %d.
Failed to open exception file %s, errno is %d.
Failed to open file %s.
Failed to open file %s.\n
Failed writing to control file.
fclose
(Unable to close output file)
fgets at line %ld.
fgets failed, errno %d at line %ld
Footer record type at line %ld position %ld.
fprintf at line %d printing text %s
ftell failed, errno %d
GSP record found after SRD at line %ld.
GSP record found before PCI at line %ld.
GSP record from date at line %ld position %ld.
GSP record GSP group at line %ld position %ld.
GSP record type at line %ld position %ld.
GSP records do not cover MSI range, "first GSP=%s, range start=%s at line %d.
Invalid job %s specified on command line.
Line %ld is too long.
MSI EAC date at line %ld position %ld.
MSI from date at line %ld position %ld.
MSI metering system at line %ld position %ld.
MSI record type at line %ld position %ld.
MSI std sett configuration at line %ld position %ld.
MSI to date at line %ld position %ld.
Negative EAC %12.1f replaced by %.1f for TP %s
No AFYC exists for GSP %s PC %s SSC %s TP %s, no EAC will be calculated
No Default EAC exists for GSP %s PC %s, no EAC will be calculated
No job specified on command line.
No memory for %d missing dates.
No memory for %ld PCI records at line %ld.
No memory for GSP list.
No memory for PCI list.
No memory for SRD list.
No memory on GSP record.
No records to process at line %d.
PCI record found after a GSP at line %ld.
PCI record found after SRD at line %ld.

PCI record from date at line %ld position %ld.
PCI record profile class at line %ld position %ld.
PCI record type at line %ld position %ld.
PCI records do not cover MSI range,
Reading GSP record at line %ld.
Reading PCI record at line %ld.
Reading SRD record at line %ld.
Record count record type at line %ld position %ld.
SRD record ADVANCE value at line %ld position %ld.
SRD record EAC value at line %ld position %ld.
SRD record found before a GSP at line %ld.
SRD record found before a PCI at line %ld.
SRD record time pattern regime at line %ld position %ld.
SRD record type at line %ld position %ld.
Unable to create new edb_data_files record
Unable to create new edb_report_files record
Unable to get next value of edb_file_seq
Writing EAC record.
Writing MSI record.

Load DPC Errors

\$EACAA is not set
Failed to convert edb_jobs.parameter to long type
Failed to get system_mode from edb_system_configuration
Failed to get the date or user.
Failed to obtain BETTA start date value
Failed to open Control File
Failed to open DPC File
Failed to open Exception File
Failed to process the file
Failed to read edb_data_files
Invalid Arguments
Job Number not read
No edb_jobs.parameter
System mode has invalid value
The Collector Participant ID not found.

unable to create new edb_data_files record
unable to create new edb_report_files record
Unable to get next value of edb_file_seq
Wrong Mkt PID ISRA: Scott DPCs before BETTA
Wrong Mkt PID IARA: DPCs on/after BETTA

Load SSC Errors

\$<environment variable name> environment variable (directory path for file stores)
not defined

Failed to commit record of exception file to the database
Failed to commit to the database

Failed to get details of participant running the system
Failed to get file details for file identified by file seq. number: <file sequence number>
Failed to get input/exception file locations
Failed to get next file name sequence number
Failed to get parameter1 (file sequence number) for job number: <job number>
Failed to get file details for file identified by file seq. number: <file sequence number>
Failed to get user name and current date and time
Failed to load Standard Settlement Configuration record: <record number>
Failed to market participant name
Failed to open exception report file: <exception file name>
Failed to open input file: <input file name>
Failed to process the whole file, encountered an error after processing <number of records processed> records
Failed to update File Status to <file status>
Failed to verify Standard Settlement Configuration exists in the database, record: <record number>
Failed to write exception report line: <line to write to exception report>
Input file is not a Standard Settlement Configuration file
Invalid job <job number> specified on command line.
Invalid option <command line option> ignored.
Missing/Invalid record type in record: <record number>
Missing/Invalid Standard Settlement Configuration Description in record: <record number>
Missing/Invalid Standard Settlement Configuration Id in record: <record number>
Missing/Invalid Av Frac Yearly Consumption value, in record: <record number>
Missing/Invalid Effective From Date for GSP Group Id<GSP Group Id>, in record: <record number>
Missing/Invalid Effective To Date for GSP Group Id <GSP Group Id>, in record: <record number>
Missing/Invalid GSP Group Id for Profile Class Id <Profile Class Id>, in record: <record number>
Missing/Invalid Profile Class Id,in record: <record number>
Missing/Invalid Time Pattern Regime Id for Profile Class Id <Profile Class Id> and GSP Group Id <GSP Group Id>, in record: <record number>
Record Ignored - Received Effective From Date <Effective From Date> older than database Effective From Date, in record: <record number>
Record Rejected - Invalid AFYC <AFYC>, value found in record: <record number>
No job specified on command line.
No Standard Settlement Configurations found in input file
Settlement date for file identified by file seq. number: <file sequence number> is Null
SSC record ignored, record: <record number>
Unable to create new edb_data_files record
Unable to create new edb_report_files record
Unable to get next value of edb_file_seq

Archive Errors

<EACAA> is not set

<TAPE_DRIVE> is not set
Archive File child Deletion process failed with <error no>, retry = <retry no>
Call to exec for <pax> failed with error no <error no>
Call to fork failed with error no <error no>, retry = <retry no>
Call to fork failed with error no <error no>, retry = <retry no>
Error - Database Inconsistency - no Smoothing Parameter record found for Settlement Date of the oldest Daily Profile Coefficients
Failed on call to PL/SQL get_lock
Failed on call to PL/SQL procedure to unlock tables
Failed to close edpc_cursor.
Failed to close temp_cursor cursor.
Failed to commit data into edb_ear_adp_temp1
Failed to commit deleted data
Failed to commit updated status in edb_ear_adp_status
Failed to create table edb_ear_adp_temp1
Failed to delete from edb_daily_profile_coefficients
Failed to delete from edb_ear_adp_temp1
Failed to delete smoothing parameters <= <settlement_from_date>
Failed to drop temporary table
Failed to fetch edpc_cursor
Failed to fetch temp_cursor
Failed to get Archive Directory Location
Failed to get smoothing parameter value
Failed to get the date or user
Failed to insert archived data into ed_ear_adp_temp1
Failed to insert status into edb_ear_adp_status
Failed to open edpc_cursor
Failed to open temp_cursor
Failed to reverse date for filename
Failed to select edb_jobs.parameter1
Failed to select effective date from edb_smoothing_parameters <settlement date>
Failed to select next date from effective date from edb_smoothing_parameters <settlement_from_date>
Failed to truncate table edb_ear_adp_temp1
Failed to update edb_ear_adp_status with parameter 1
Failed to update status in edb_data_files to Archived
Failed to update status in edb_ear_adp_status
Failed to write to report file. error no <error no>
Failed to write to test file. error no <error no>
File Deletion failed with <error no>
Found unarchived files in edb_data_files before <settlement_date> when non expected.
Invalid job %s specified on command line.
Invalid option ignored.
Invalid status in edb_ear_adop_status
Job <job number> for ear_adp not found in edb_jobs
No job specified on command line.
Previously failed module called with a different parameter1. Previous <old parameter1>, now <parameter1>

Tape archive child process failed with <error no>, retry = <retry no>
 Tape archive failed with <error no>
 Tape check child process failed with <error no>, retry = <retry no>
 The Collector Participant ID not found.
 Unable to create archive report file. error no <error no>
 Unable to create test file to check for physical tape <error no>

Restore Archived DPCs Report Errors

<EACAA> is not set
 <TAPE_DRIVE> is not set
 Call to exec for <pax> failed with error no <error no>
 Call to fork failed with error no <error no>, retry = <retry no>
 Failed to get Report Store Directory Location
 Failed to reverse settlement date to YYYYMMDD
 Failed to select edb_jobs.parameter1
 Failed to select from edb_data_files
 Invalid job <job number> specified on command line.
 Invalid option ignored.
 Job No <job number> not found for procedure ear_rad
 No Archive files exist for settlement_date <settlement_date>
 No job specified on command line.
 Tape retrieve child process failed with <error no>
 Tape retrieve child process failed with <error no>, retry = <retrry no>
 The Collector Participant ID not found.

Report Formatter Errors

%s is not set
 Allocating memory for %ld field info records.
 Allocating memory for %ld header lines.
 Allocating memory for %ld record info records.
 Count field headers.
 Error reading file. Id: %.0f :- %s
 Error reading record. File id: %.0f Record: %d
 Failed getting field count for report type %s record type %s.
 Failed getting record info count for report type %s.
 Failed in erp_read_next_record.
 Failed to close file, file id is %ld.
 Failed to close report file.
 Failed to create output file.
 Failed to get input file location
 Failed to get output file location
 Failed to get report details for report type %s.
 Failed to get the output file's file handle.
 Failed to get the participant id and market role.
 Failed to open file with file id %ld.
 Failed to update output file, file_seq_num=%ld.
 Fetching field header records.
 Fetching field info records.
 Fetching record info records.

Field too big (current offset %d). File ID: %.0f Record: %d
File %ld unknown.
File %ld.
Invalid field number from edb_field_info, %ld.
Invalid field type %c.
Invalid job %s specified on command line.
Job %ld unknown.
Job number %ld.
No job specified on command line.
Open field header csr.
Organisation %s is longer than page width.
Organisation not found
Page number string (%s) longer than page width.
Page number string too long, %s.
Record type is wrong length. File id %.0f Record %d
Report type %s has no record info records.
Report type %s record type %s has no field records.
Retrieving timestamp.
Row header too long, %s.
Selecting field info records for report type %s record type %s.
Selecting record info records for report type %s.
Timestamp %s is longer than page width.
Title %s is longer than page width.
Unable to close file - %s
Unable to commit transaction
Unable to create data files record
Unable to flush file - %s
Unable to get next value of edb_file_seq
Unable to open file: %s,\"%s\" - %s
Unable to read record type. File id %.0f Record %d
Unable to rollback transaction
Unable to update edb_data_files
Unable to update edb_report_files

DMR Audit Report Errors

Bad command line.
Commit failed.
Could not insert record into edb_data_files
Could not insert record into edb_report_files record
Failed processing audit file.
Failed to get file locations.
Failed to get the participant id and market role.
Failed to get the username from the edb_jobs table.
Failed to initialise application.
Failed to open file %s.
fclose
fprintf at line %d printing text %s
Invalid job %s specified on command line.

Invalid option %c ignored.
 Job number %ld.
 No job specified on command line.
 Unable to get next value of edb_file_seq
 Writing MET record.
 Writing PRO record.

Report DPCs Errors

Closing cursor failed.
 Env undefined %s
 Failed to create file %s %s.
 Failed to get report dir.
 Failed to get the participant id and market role.
 Fetch cursor failed.
 fprintf failed to output line %.0f: %s
 Insert into edb_data_files.
 Insert into edb_report_files.
 Invalid job %s specified on command line.
 No job specified on command line.
 Opening cursor failed.
 Retrieving edb_filename_seq value failed.

Load DCE Errors

[Failed to convert edb_jobs.parameter to long type](#)
[Failed to get system_mode from edb_system_configuration](#)
[Failed to get the date or user.](#)
[Failed to open Control File](#)
[Failed to open DCE File](#)
[Failed to open Exception File](#)
[Failed to process the file](#)
[Failed to read edb_data_files](#)
[Invalid Arguments](#)
[Job Number not read](#)
[No edb_jobs.parameter](#)
[System mode has invalid value](#)
[The Distributor Participant ID not found.](#)
[unable to create new edb_data_files record](#)
[unable to create new edb_report_files record](#)
[Unable to get next value of edb_file_seq](#)

A.2 File Receipt Manager Log

The following messages may be displayed in the File Receipt Manager log. Those suffixed with (S) are status message that are recorded in the log when the File Receipt Manager starts up:

Calculated checksum: <calculated checksum>& checksum in footer: <checksum found in footer> are not equal

Calculated record count: <calculated record count>& record count in footer:
<record count found in footer> are not equal

Control File [<Control file name>] (S)

DBMS Lock Name [<DBMS lock name>] (S)

DPC file found, but source market participant role code is not <role code>

EACAA or DMA request file found, but source and target participants are not the
same

Error in reading record, line too long or read error

Failed to get system_mode from edb_system_configuration.

File Dir [<File store>] (S)

File Receipt Dir [<File receipt store>] (S)

File Receipt Manager daemon started (S)

File Reject Dir [<File reject store>] (S)

File: <file name> (S)

Found DPC file, run type code in <second header record type> record should be
<run type code>

Ignoring this file as file name ><length of the file name>

Invalid file content code in <first header record type> record, valid types are: <list
valid file content codes>

Invalid first header record type, should be <first header record type>

Invalid gsp group id in <second header record type> record

Invalid run type code in <second header record type> record

Invalid settlement code in <second header record type> record

Invalid settlement date in <second header record type> record

Log Dir [<Log directory>] (S)

Missing/Invalid checksum

Missing/Invalid file content code in <first header record type> record

Missing/Invalid file creation timestamp in <first header record type> record

Missing/Invalid first header record

Missing/Invalid footer record type, should be <valid record type>

Missing/Invalid mandatory field run number in <second header record type>
record for <file content code> file type

Missing/Invalid mandatory field run type code in <second header record type>
record , run type code should be <run type code> for <file content code> file type

Missing/Invalid mandatory field settlement date in <second header record type>
record for <file content code> file type

Missing/Invalid record count

Missing/Invalid run number in <second header record type> record

Missing/Invalid second header record

Missing/Invalid second header record type, should be <valid record type>

Missing/Invalid source market participant id in <first header record type> record

Missing/Invalid source market participant role code in <first header record type>
record

Missing/Invalid target market participant id in <first header record type> record

Missing/Invalid target market participant role code in <first header record type>
record

Poll Interval [<EFR_FRM poll interval>] (S)

Receiving files... (S)

Shutdown complete

Shutdown requested, signal no: <signal number> detected

Source market participant does not exist in the database
System mode has invalid value.
Target market participant does not exist in the database

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Document Title

Document Issue

Issue Date

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