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elexon

**EAC/AA System Management Guide**

**Version Number 18.3**

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# 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 12.0.0 and later of the EAC/AA application software.

## Purpose

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

## 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.

## Structure of Document

The remainder of this document consists of the following sections:

1. Section 2 gives an overview of the EAC/AA system;
2. Section 3 describes the application software structure in terms of its subsystems;
3. Section 4 outlines the hardware and software environment;
4. Section 5 shows the system parameters;
5. Section 6 shows the organisation of the EAC/AA database;
6. Section 7 describes the organisation of the EAC/AA application software;
7. Section 8 provides information on system security;
8. Section 9 describes how to start up and shut down the system;
9. Section 10 describes the facilities available for monitoring the data used by the application software;
10. Section 11 discusses archive and restore facilities;
11. Section 12 outlines backup and recovery functionality.

Appendices to this document are as follows:

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

## 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. |
| 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 |
| 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 |
| 18.0 | Clean version - Nov 2015 Release |
| 18.1 | Nov 2015 changes post Go-Live |
| 18.2 | Draft version for Tech Upgrade Oracle 12c/ Solaris 11 |
| 18.3 | Updated After Initial Review by Elexon |

## Summary of Changes

Changes as indicated in the amendment history.

## Changes Forecast

Agreed Change Requests will be incorporated.

## References

| Mnemonic | Information | Details |
| --- | --- | --- |
| [EOPSGDE] | Title:  Version No:  Author:  Date: | EAC/AA Operations Guide.  19.0  CGI  22 February 2018 |
| [EINGDE] | Title:  Version No:  Author:  Date: | EAC/AA Installation Guide (740PZT).  19.0  CGI  22 February 2018 |
| [ETSPEC] | Title:  Version No:  Author:  Date: | EAC/AA Physical Design Technical Specification  20.0  CGI  22 February 2018 |

## 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

## Intellectual Property Rights and Copyright

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# Overview of the System

The main functions of the EAC/AA application software are as follows:

1. Generate Estimated Annual Consumptions, based on Meter Advances, Daily Profile Coefficients and previous estimates;
2. Generate Deemed Meter Advances, based on Estimated Annual Consumptions and Daily Profile Coefficients;
3. Load Daily Profile Coefficients for different Settlement Dates to support the functionality described above;
4. Ensure appropriate data is stored in order to view the details of any calculations;
5. Maintain configuration data in the database;
6. Provide reports on data associated with EAC/AA;
7. Generate Deemed Meter Readings based on Daily Profile Coefficients manually on Ad Hoc basis.
8. 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.

## 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:

1. System Operator;
2. Operations Supervisor;
3. System Manager;
4. Auditor.

## Scope of System

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

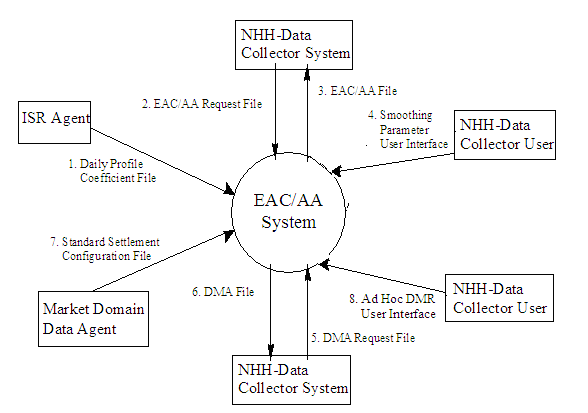


Figure 1: External Interfaces to EAC/AA System

1. 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.

1. 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.
2. The results of the EAC/AA calculations are passed to the Non-HH Data Collector via the file interface.
3. The Smoothing Parameter data originating from the Non-HH Data Collector is maintained by the EAC/AA users via a user interface form.
4. 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.
5. The results of the Deemed Meter Advance calculations are passed to the Non-HH Data Collector via the file interface.
6. 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.
7. 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.
8. 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.

# 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.

## 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:

1. EAC/AA Request file;
2. Deemed Meter Advance Request file;
3. Daily Profile Coefficient file;
4. 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.

## 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.

## 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.

## 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.

## 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 10.3for further information about audit logs.

## 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.

## 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:

1. EAC/AA Calculation Control Report
2. EAC/AA Calculation Exception Report
3. EAC/AA Tolerance Value Exception Report
4. DMA Calculation Control Report
5. DMA Calculation Exception Report
6. DPC Load Control Report
7. DPC Load Exception Report
8. SSC Load Exception Report
9. DMR Audit Report
10. 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 Coefficientsare 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

## 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.

## 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.

User Administration

(EUA) Subsystem

USER

Database

Audit Log Store

Figure 12: User Administration (EUA) Subsystem

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

# 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.

## 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.

Tape Drives

Console

Processor

(CPU, Memory, Bus, Power)

Disk Drives

LAN Connection

Tape Drives

Console

Processor

(CPU, Memory, Bus, Power)

Disk Drives

LAN Connection

**Database Server**

Application Server

**Clients**

Monitor

Keyboard

Mouse

LAN Connection

Disk Drive

Printer

Processor

(CPU, Memory, Bus, Power)

Figure 9: EAC/AA 3-Tier Physical Architecture

Monitor Key Board Mouse

Processor

(CPU, Memory, Bus, Power)

LAN Disk

Connection Drive

**Clients**

**Database and Application Server** Server

Tape Console Drivers

Processor

(CPU, Memory, Bus, Power)

Disk LAN

Drives Connection

Printer

**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:**

1. POSIX-compliant server.

**Application Server**

1. Pentium 3.4Ghz or better Processor;
2. 1 GB or better Memory;
3. 30 GB Disk Space;

**Client:**

1. 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 12c (12.2.1.2.0) for 2-Tier Architecture. Refer to Oracle® Application Server Certification Information 12c (12.2.1.2.0) for 3-Tier Architecture.

## Software

The EAC/AA system server runs an Oracle 12.2.0.1.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 12c version 12.2.1.2.0 on Microsoft Windows 2012 Server as well as Oracle Net services to enable client - server communication.

For the 2-Tier application, the Application server runs Oracle Forms 12c version 12.2.1.2.0 on 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.

Windows 2012 Server

**Database Server**

Shell

Application

C Application

PRO\*C

Oracle RDBMS

NET Services

POSIX

FTP

**Application Server rver**

Form Application

Libraries

FORMS

NET Services

FTP

**Client**

Operating System

Browser

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 | Oracle Solaris on SPARC (64-bit) Version 5.11 and patched to 11.3.21.5.0 (Branch: 0.175.3.21.0.5.0 ).. 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 2012 Server | Application Server | Service Pack 1 |
| Oracle Server (includes PL/SQL) | Database Server | 12.2.0.1 |
| Pro\*C runtime | Database Server | 12.2.0.1 *Runtime deployment is included in original Oracle/Developer license for development* |
| Oracle Forms runtime | Application Server | 12.2.1.2.0 *Runtime deployment is included in original Oracle/Developer license for development* |

Shell C Forms

Application Application Application Libraries

FORMS

Net Services

POSIX FTP

Database and Application Server

Clients

Browser

Operating System

Pro\*C

Oracle

RDBMS

**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 | Oracle Solaris on SPARC (64-bit) Version 5.11 and patched to 11.3.21.5.0 (Branch: 0.175.3.21.0.5.0 ).. 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 | 12.2.0.1 &  12.2.1.2.0 |
| Pro\*C runtime | Database and Application Server | 12.2.0.1 *Runtime deployment is included in original Oracle/Developer license for development* |
| Oracle Forms runtime | Database and Application Server | 12.2.1.2.0  *Runtime deployment is included in original Oracle/Developer license for development* |

# 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:

1. participant\_id;
2. market\_role;
3. 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.

# 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.

## 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.

## 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 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 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.

# 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.

## 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 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.

## 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 |
| 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 yyyymmdd

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

1. unique filenames across all possible sources and destinations;
2. 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.

## 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.*

## 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.

### 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.

### 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:

1. R : job is running;
2. W : job is waiting execution;
3. F : job failed during execution;
4. C : job completed successfully;
5. 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.

# User Accounts, Privileges and Security

The EAC/AA system provides three levels of security:

1. Server Operating System;
2. Oracle database tables;
3. Oracle forms.

## 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.

## 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:

1. EAC/AA System Operator;
2. EAC/AA Operations Supervisor;
3. EAC/AA System Manager;
4. 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.

## 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.

## 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.

## 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.

## 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;

# 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.

## 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.

### 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.

### Starting the Network Listener

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

lsnrctl<CR>

and then

start<CR>

### 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).

### 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).

### Access EAC/AA from the PC

Double-click on the icon from the PC.

## 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.

### 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.

### 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.

### Shutting Down the Database

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

# Monitoring the System

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

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

## 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.

## Control, Exception and Audit Reports

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

1. Load Daily Profile Coefficients;
2. Determine Deemed Meter Advance;
3. Calculate EAC/AA.

An exception report is generated by the following batch process:

1. Load Standard Settlement Configuration file.

An audit report is generated by following Oracle form:

1. 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.

## 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’.

## 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)

## 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.

# 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 L0003001 (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 Profile Coefficient Report File | Never deleted by EAC/AA system |
| 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, PEEX\_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.

# 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.

## Application Software Functionality Supporting Backup and Recovery

### 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 Oracle12c Administrator’s Guide and Oracle12c Concepts. Both of these are supplied on a CD with the Oracle Distribution Kit.

### 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, e.g. 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.

### 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:

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

## 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.

### 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.

### 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:

1. redo logs;
2. database files;
3. 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.

### 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.

### 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.

# System Management of Application Server

## 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.

###### 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 crreate 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**

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| 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:

|  |
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| 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 |

Comment Form

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| Document Title | EAC/AA System Management Guide |
|  |  |
| Document Issue | 19.0 |
|  |  |
| Issue Date | 22 February 2018 |

If you have any comments on the accuracy and completeness of this document, please write them on a copy of this form and forward by email to the Helpdesk.

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