

Fujitsu Services

Audit Extraction Support Guide

Ref: TD/MAN/018

Version: 2.0

Date: 21-MAY-2003

COMMERCIAL IN CONFIDENCE

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0.0 Document Control

0.1 Document History

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Review Comments to:	Originator

Mandatory Review Authority	Name
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Optional Review / Issued for Information	
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(*) = Reviewers that returned comments

0.3 Associated Documents

Reference	Version	Date	Title	Source
SD/DES/076		30/09/1999	Physical Design for Audit Server	PCMS
SD/DES/072		25/06/1999	Audit Data Storage & Retrieval: High Level Design	PCMS
SD/DES/115		25/07/2000	Audit Data Storage & Retrieval: High Level Design	PCMS

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SD/DES/116		25/07/2000	Audit Data Extraction & Filtering: High Level Design	PCMS
TD/LLD/013		Oct 2002	Audit Extractor Low Level Design	PVCS
TSC/AGT/038		20/04/1999	High Level Design of Common Agents for Release 2	PCMS
P/N 22-1877 -01		March 1998	Legato Networker Administrator's Guide	Paper
TD/MAN/017		1/07/2002	Audit Server Support Guide	PVCS

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

0.4 Abbreviations/Definitions

Abbreviation	Definition
AEC	Audit Extractor Client
HLD	High Level Design
LLD	Low Level Design
DLT	Digital Linear Tape
ATG	Audit track gatherer
ATS	Audit track sealer
ATH	Audit track hoarder
ATD	Audit track deleter
ATR	Audit track retriever
DLL	Dynamic Link Library.
UNC	Universal Naming Convention.
AT	Audit Track
RFI	Request For Information
ARQ	Audit Record Query

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0.5 Changes in this Version

Changes
Review comments incorporated. The abbreviation, 'RFI' has been replaced by 'ARQ'. All user visible screens and messages have had this change implemented, but where it is used in code elements it has not been replaced

0.6 Changes Expected

Changes
None

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1.0 Introduction

This document is the support guide for the AuditExtractor (AE) application, which is the mechanism with which Fujitsu Services (Post Office Account) Internal Auditors can audit and track data.

1.1 Scope

This document aims to provide a support guide for the AE mechanism. An associated element of the 'Audit' solution is the 'Audit Server' facility that, as fully covered in **TD/MAN/017**, is not covered in this document.

In addition, this support guide does not cover the following integral elements of the 'Audit' solution:

- Legato Networker. This is a commercial product that is used by the 'Audit', (and 'Archiving') applications for the long term storage of audit data,
- Maintenance of the 'Legato Networker' run time configuration,
- Maintenance of the 'Audit' configuration file, i.e. the run time parameters,
- The standalone graphical configuration tool, 'Configurer.exe'.

2.0 Outline of Purpose of Product

The main function of this application is to provide Fujitsu Services (Post Office Account) Internal Auditors a mechanism to provide extracts of the audit data from the Audit Archive in response to information requests from external auditors. The mechanism interfaces with the 'Audit Server' facility.

2.1 Performing the functions

2.1.1 Overview

The AE mechanism consists of both a client-side GUI running on a WindowsNT workstation (the AuditExtractorClient or AEC), and server based elements.

The functionality of the application is split so that a forms-based executable on the client handles presentation, and SQLServer2000 running on the server performs the Access/Networker operations. The two communicate via system DNS using NT 'pass-through' authentication.

An insert 'trigger' within SQLServer2000 detects records added via client calls and depending on values passed by the client determines which server side executable is to run.

The server side executables record progress by changing 'State' values within a table in SQLServer2000. Changes in 'State' are monitored by the client, via a timer and upon successful completion or otherwise, present the results to the user.

The application is structured in a way that supports dynamic selection of the server to connect to and additionally runs under user *system*.

The Client connects to both the RFISQL and SEALERSQL databases using Remote Data Object (RDO) to create and manipulate components of a remote ODBC database system.

2.2 AE components

2.2.1 Client side

The current version of AEC, numbered 8.4.0, consists of the components:

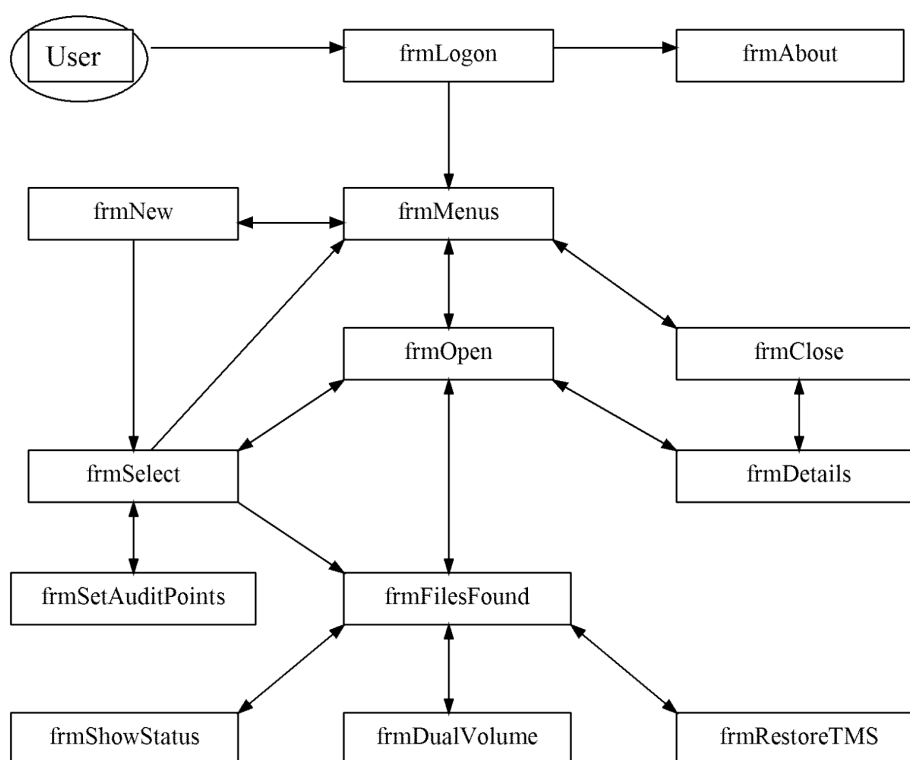
- *AuditExtractClient.exe* (8.4.0)
- *ExtractorClientControls.ocx* (8.4.0)

The AEC is a GUI executable running on a workstation PC, extracting audit data from a server on the basis of criteria supplied by the user.

The AEC has been developed as a VB project group consisting of two VB projects one a "standard .EXE" project and the other is an "ActiveX Control" project which supplies custom controls for the .EXE.

The AEC has been designed to provide multi-user functionality irrespective of whether the 'use' is from users on different workstations and/or one user running many instances of AEC on one workstation.

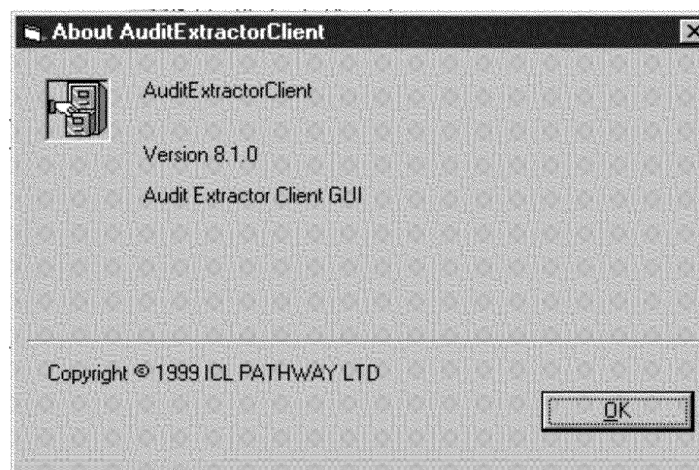
AEC consists of thirteen forms navigable as follows:



NB. Restrictions on navigation exist and relate to user activity and/or file selection on an ARQ, these will be discussed within this document.

2.2.1.1 AEC forms

2.2.1.1.1 frmAbout



The form is displayed once the user selects 'About' from the menu bar on *frmLogon* (see 2.2.1.1.5 *frmLogon*) and being modal in nature, requires the user to click the 'OK' button before the user can proceed.

The form displays the major, minor and revision version numbers.

2.2.1.1.2 frmClose

The screenshot shows a Windows-style application window titled "Audit Extractor - Close Request". Inside the window, there is a "Request Reference" dropdown menu, a "Show Details" button, and an "Access Reason" text area containing the text "FEL01002w/" and "FEL01003w/". Below this is a table titled "Files Names" with columns "Filename", "Status", "Volume", "OnLine", and "Bz". The table is currently empty, and below it, it says "0 Files Found". At the bottom of the window are two buttons: "Close Request" and "Return to Menu".

2.2.1.1.3

This form is displayed by selecting the 'Close' option from the main menu on the form *frmMenus*

An ARQ that is available for selection is accessed by way of a drop-down list box from which the user makes a selection. With an ARQ selected the user may use the 'Show Details' button on the form to see details of the request. The last known status value for each of the files associated with the ARQ is displayed.

The form allows the user to close an ARQ within the database. Closing is NOT the opposite of opening a record. It really means freezing the record. The user will no longer be able to update details associated with the ARQ. Having selected an ARQ, closure is implemented by the user clicking the 'Close Request' button.

Closure removes the ARQ from the drop-down list box and disables the 'Close Request' button, which remains disabled until a further ARQ is selected. Navigation back to the main menu is via the 'Return to Menu' button.

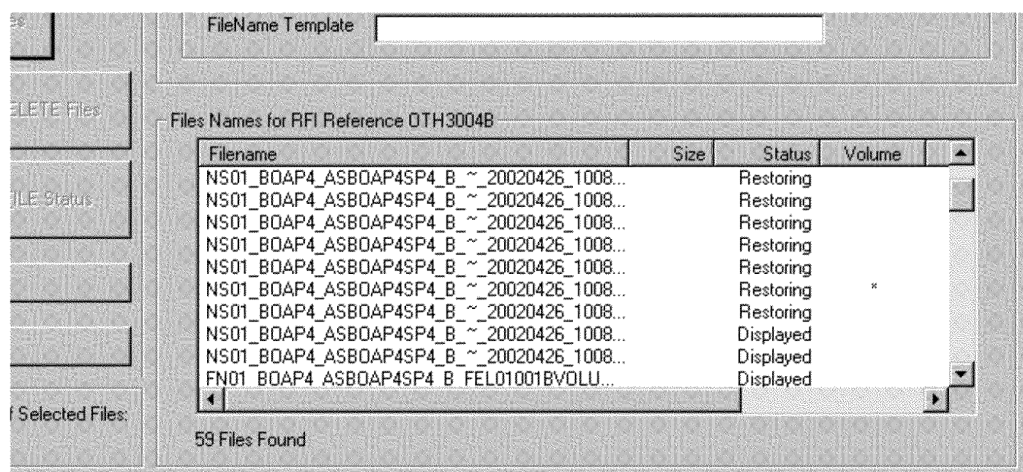
Whilst the 'CLOSE' action is running the user is prevented from using the Client interface. Progress or Error messages are output to the status line at the bottom of the form.

When a user chooses to 'CLOSE' an ARQ then the Username and WorkstationID values are recorded with the closed ARQ details within the RFISQL database. A server-based executable, triggered by the 'CLOSE' action, moves all records associated with the ARQ from 'working' tables to 'archiving' tables in the RFISQL database.

Upon successful closure a Log detailing all user actions and listing all files utilised is generated on the server at D:\ARCHIVESERVER\USERAREA and the user is advised via a message box. Failure to successfully close an ARQ is similarly notified to the user.

2.2.1.1.4 frmDualVolume

This form is opened by the user double clicking upon a filename in the list view control on form *frmFilesFound* when the value in column 'Volume' is displaying ' * ' (an asterisk).



Upon double clicking, the form *frmDualVolume* opens providing the user with both volume details for the selected file.

It is a limitation of the system that the situation would not occur whereby a file would span in excess of two volumes, that is in excess of 70Gb.

File: Actions IMS
Current List Control

AMEND Criteria

Selection Criteria for RFI Reference OTH30048 : Retrieving Passive

Time Period Required
From Date: 26/04/02 To Date: 26/04/02

File Source Required
Audit Point Selection Criteria

Selected file spans two tape volumes

Filename: NS01_BOAP4_ASBOAP4SP4_B_~_20020426_10082985_V\X\X.txt

1st Tape:	2nd Tape:
Volume name: Non_TMS_Pool_18mth_B0.001	Volume name: Non_TMS_Pool_18mth_B0.002
On-line: False	On-line: True
Barcode: AXU001	Barcode: AXU002

Return

File Sizes

File Information
No of Files Selected: 1 Size of Selected Files: 0

NS01_BOAP4_ASBOAP4SP4_B_~_20020426_1008...
FN01_BOAP4_ASBOAP4SP4_B_FEL01001BVOLU...
59 Files Found

Form *frmDualVolume* is modal, requiring the user to click the command button 'Return' before any further actions can be performed. Clicking 'Return' results in form *frmDualVolume* closing.

2.2.1.1.5 frmFilesFound

All user actions necessary to identify and obtain Audit data files are invoked from this form, *frmFilesFound*. Accordingly all user facilities are centred on the user's need to build a list of files, as a first step, and to restore all, or a nominated selection of, the files in the file list.

There are two routes that the user can use to arrive at this form. The first route involves working with an existing ARQ and *frmFilesFound* is accessed via *frmOpen*, whilst the second requires starting a new ARQ using *frmNew* and then accessing *frmFilesFound* via *frmSelect*. In both cases the current selection criteria will have been saved in the RFISQL database, but the file list may contain a list of files, or be empty.

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RFI: OTH3006B - Status: New:FileList

File Actions IMS
Current List Control

AMEND Criteria

Selection Criteria for RFI Reference OTH3006B : New:FileList

Time Period Required
From Date 22/04/02 To Date 22/04/02

File Source Required
Audit Point Selection Criteria

Audit Point	Audit Sub Point	FAD Code

< Update

FileName Template

Selected File List Control

RESTORE Files

REPLACE Files DELETE Files

VOLUME Status FILE Status

List UPDATE

File SIZES

File Information
No of Files Selected: 0 Size of Selected Files: 0

Files Names for RFI Reference OTH3006B

Filename	Size	Status
NS01_WIAP1_ASWIAP1SP1_W_~_20020422_150...		Unknown
NS01_WIAP1_ASWIAP1SP1_W_~_20020422_145...		Unknown
NS01_WIAP1_ASWIAP1SP1_W_~_20020422_145...		Unknown
NS01_WIAP1_ASWIAP1SP1_W_~_20020422_145...		Unknown
NS01_SRVBO_BO~SELF AUDIT_B_~_20020422_1...		SealOK No
NS01_SRVBO_BO~SELF AUDIT_B_~_20020422_1...		SealOK No
NS01_SRVBO_BO~SELF AUDIT_B_~_20020422_1...		SealOK No
NS01_SRVBO_BO~SELF AUDIT_B_~_20020422_1...		SealOK No
NS01_BOAP1_ASBOAP1SP1_B_~_20020422_1323...		Displayed
NS01_BOAP1_ASBOAP1SP1_B_~_20020422_1323...		Displayed

257 Files Found

From a user's point of view the main focus is the list of files that are displayed in the lower right quarter of the form. The user manipulates the list of files by the use of the buttons on the left-hand side of the form. The data relating to the users search criteria, shown in the top right hand quarter of the form, is there for reference only and cannot be changed, at least directly, by the user.

2.2.1.1.5.1 frmFilesFound buttons

There are eight command buttons:

'AMEND Criteria' 'RESTORE Files' 'REPLACE Files' 'DELETE Files'
'VOLUME Status' 'FILE Status' 'List UPDATE' 'File SIZES'

Upon *frmFilesFound* opening, only button 'List UPDATE' is available to the user. The remaining seven buttons are not enabled until the user has selected at least one file from the list of files.

Users are able to 'Select' one or more files from the existing file by the normal windows object selection facilities, i.e. 'CTRL / click' for non-consecutive selections, or 'SHIFT / click' (or dragging) for consecutive selections.

AMEND Criteria

This causes the list of files (if any) associated with the to be destroyed. The form *frmFilesFound* is closed and the user is returned to the form *frmSelect* (see 2.2.1.1.10 *frmSelect*).

However if any files in the file list have been retrieved, meaning that the 'Status' value is other than 'Displayed' the action fails, *frmFilesFound* remains open and a message box is displayed containing:

“Further criteria changes can not be implemented after files have been 'Restored'.
This action will not be invoked.”

DELETE Files

This button enables users to remove one or more files from the file-list. This is achieved by the user selecting, (highlighting) the files to be removed from the list and clicking this button.

The number of files due to be deleted is notified to the user and confirmation sought before the deletion takes place.

However if files from within the file-list have been retrieved, meaning that the 'Status' value is other than 'Displayed' a message box is displayed containing:

“The unwanted file(s) contained n file(s) that could not be deleted. Only files with a 'status' value of 'Displayed' can be deleted.”

(Where 'n' relates to the total of files that can not be deleted).

File SIZES

This action returns for each selected file the size in bytes.

After selecting one or more files from the file-list and clicking this button the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be viewed in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*) opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

Upon completion the file size(s) of the selected file(s) are displayed in the file-list once the user clicks on the 'List UDATE' button. The cumulative total for the selected file(s) additionally appears on the form expressing the total in terms of bytes, Kb, Mb or Gb.

FILE Status

This action returns the seal status for each selected file. The action is only available where at least one selected file has a 'Status' value other than 'Displayed'. Clicking the button having selected a single file (or all files) having a 'Displayed' status results in a message box being displayed containing:

"All selected files have 'Displayed' status. No actions have been implemented at this time."

Subject to the above, after selecting one or more files from the file-list and clicking this button the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be viewed in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*), opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

Upon completion the 'Status' for the selected file(s) are displayed in the file-list once the user clicks on the 'List UDATE' button.

List UDATE

This button enables the user to deselect any file(s) previously selected in the file-list. Additionally all columns within the file-list are repopulated.

REPLACE Files

Whilst the 'DELETE Files' button *removes* only the user selected files from the file-list, this button *leaves* only the user selected files in the file-list.

The number of files due to be deleted is notified to the user and confirmation sought before the deletion takes place.

However only files in the file-list that have not previously been retrieved, meaning that the 'Status' value is other than 'Displayed', can be removed. For any file having previously been retrieved a message box is displayed containing:

"The unwanted file(s) contained n file(s) that could not be deleted. Only files with a 'status' value of 'Displayed' can be deleted."

(Where 'n' relates to the total of files that can not be deleted).

and the file(s) remains in the file-list. Upon completion the file-list is refreshed.

RESTORE Files

This facility implements a users request to obtain named files, selected from the file-list, from storage to the servers file store area.

Upon selection, the values within the 'Status' column of the file-list, for the selected file(s) is updated to 'Requested'. After selecting one or more files from the file-list and clicking this button the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be viewed in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*), opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

On completion, the updated values of the selected file(s) can be displayed in the file list when the user clicks the 'List UPDATE' button.

VOLUME Status

This facility implements a users request to obtain details of the 'tape' media for named files selected from the file-list that the user wishes to restore.

After selecting one or more files from the file-list and clicking this button the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be viewed in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*), opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

Upon completion the 'Volume' values of the selected file(s) are displayed in the file-list upon the user clicking the 'List UPNDATE' button.

2.2.1.1.5.2 frmFilesFound menu-bar items

A further range of user actions can be instigated from the drop down menu items held in the menu-bar.

'File'

The drop down menu is displayed as the user hold's the cursor over 'File' contains one sub-menu item 'Close'.

Upon clicking 'Close', form *frmFileFound* is closed and the previously 'open' ARQ is freed and becomes available for reselection by any user. The user is returned to *frmMenu*.

'Actions'

The drop down menu is displayed as the user hold's the cursor over 'Actions' contains one sub-menu item ' Check Actions '.

Upon clicking 'Check Actions', form *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*). This enables the user to determine the current state of a previously instigated action.

'TMS '

The drop down menu is displayed as the user hold's the cursor over 'TMS' contains three sub-menu items, 'Clear Message Store ', 'Generate Message Store' and 'Server MS Build'.

(a) Clear MessageStore

Upon clicking this menu option AEC undertakes a checks to determine where the Message Store associated with the current ARQ was generated, that is, whether on the users workstation or on the server.

Whilst the 'Clear MessageStore' action is running, the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*), opened through the menu-item 'Check Actions'. This is located within the forms' menu bar option 'Actions'.

(b) Generate Message Store

A Message Store is normally generated on the workstation upon which the user is running the current instance of an ARQ, but exceptionally, a user can request that the Message Store is to be generated on the Server.

However only one instance of a Message Store is allowed on any one Audit platform, (Workstation or Server), and if an ARQ client is using a specific Audit platform to build a Message Store then no other ARQ/User can build or use another Message Store on the same platform.

A user upon clicking this menu item causes the AEC to undertake checks to evaluate the above restrictions. Providing it is in order to do so, form *frmRestoreTMS* is opened. (see 2.2.1.1.9 *frmRestoreTMS*).

Whilst the 'Generate Message Store' action is running, the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*), opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

(c) Server MS Build

As only one instance of a Message Store is allowed on any one server this action may be disabled preventing user selection. Upon clicking this menu item, the user receives the following message requiring a further confirmation before they can proceed:

"Please note that by selecting this option you will have exclusive use of the server Message Store while this ARQ remains 'Open'. Also, selecting this option will lock out all other users from building a Message Store on the server until it is finally closed. Please confirm that you wish to build this ARQ's Message on the server and not on your workstation."

The user will be unable to use this facility if another user has 'simultaneously' been successful in running the action as only one instance of a Message Store is allowed on any one Audit server. A message box informs the user of failure displaying the message:

"Server build is not possible at this time. This facility is being used by x."

(where x is the ARQ that is using the server Message Store.)

Whilst the 'Server MS Build' action is running, the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be in *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*), opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

'Oracle'

The drop down menu, displayed as the user hold's the cursor over 'Oracle' contains one sub-menu item 'Build Table '.

This facility implements a users request to call details from an ORACLE database for a *single* named file selected from the file-list. The action is only available for a selected file having a 'Status' value of 'SealOK'.

Clicking 'Build Table' prior to file selection results in a message box opening displaying the message:

"This action is only available for a Selected file with a Status value of: 'SealOk'.
Please make your selection."

Clicking 'Build Table' having selected multiple files having a 'Status' value of 'SealOK' results in a message box opening displaying the message:

"This action requires that only one file is selected from the file list. Please amend your selection."

Whilst the 'Build Table' action is running, the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC. The status-bar informs the user.

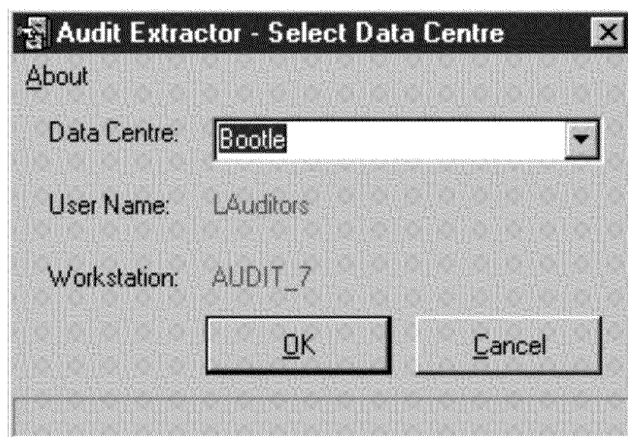
When the 'normal' pointer returns, the user is once more able to operate the AEC. The progress of the action, to completion, can be viewed in *frmShowStatus* (see 2.2.1.1.13

frmShowStatus), opened through the menu-item 'Check Actions' within the forms' menu bar option 'Actions'.

Failure of the 'Build Table' action in a message box opening displaying the message:

" The request to build an Oracle table has failed. Please contact your administrator."

2.2.1.1.6 frmLogon



Upon opening the application the user is presented with the above screen. The choice of server the user wishes to connect to is made from selection from the drop down list. Alternatively the user is able to enter a server name.

The user is able to continue via the 'OK' button or abort using 'Cancel'. Alternatively users can access the 'About' screen via the 'About' menu option. (see 2.2.1.1.1 frmAbout).

Clicking 'Ok' prior to selecting or entering a server results in a message box opening displaying the message:

" A server name must be supplied. This application is aborting."

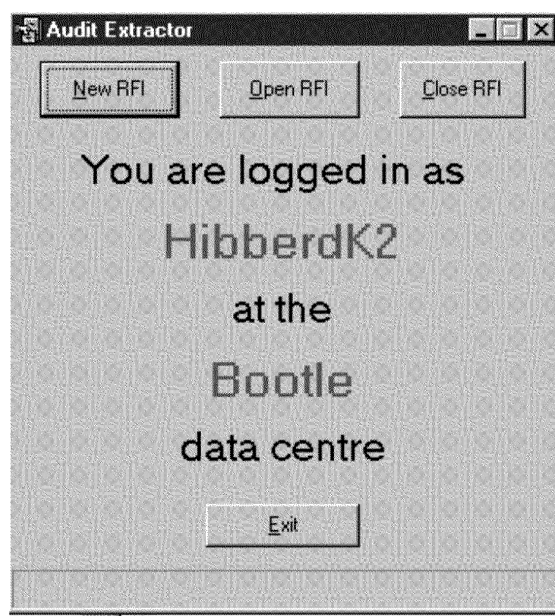
If a connection can not be established, a message box displaying the message:

"Database connection or access failure using server: X on connecting to the databases. Please contact your Administrator."

opens and the application closes.

The 'User Name', namely the users NT Logon name together with the workstation name/ID, is prominently displayed on the form. The status bar at the foot of the form informs the user of progress.

2.2.1.1.7 FrmMenu



This form is displayed immediately after the form *frmLogon* and shows, which username is active and to which data centre the user has connected.

The form provides the means of navigation for: Opening, Closing and creating New ARQ's via the 'OpenARQ', 'CloseARQ' and 'NewARQ' command buttons. The 'Exit' button closes the application.

The user must return to this screen to start a new function, for example open a different ARQ. Error / progress messages are output to the status line at the bottom of the form.

2.2.1.1.8 frmNew

The screenshot shows a window titled "Audit Extractor - Raise New Request". Inside, there is a "Request" section with several input fields: "Requester" (a dropdown menu currently showing "STARTUP REQUEST"), "Date Received" (a text box), "Catalogue Entry" (a text box), "Date Required" (a text box), "Receipt Reference" (a text box), and "Access Reason" (a large text area). At the bottom of the window, there are three buttons: "Specify Selection Criteria", "Save Request", and "Return to Menu".

This form is displayed by selecting the 'New' option from the Request menu on the form *frmMenus*. Using this form the user is able to create an ARQ. All fields are mandatory except for 'Catalogue Entry'.

The command buttons provide the user with three options

- 'Return to Menu' which cancels the creation of the new ARQ.
- 'Save Request'. That is, to save the new ARQ details
- 'Specify Selection Criteria'. This option causes the new ARQ to be saved followed by form *frmNew* closing and *frmSelect* opening.

Error / progress messages are output to the status line at the bottom of the form.

In the example below a new record has been created by completing the required fields and clicking the 'Save Request' button. A confirmatory '** Save completed **' message has been returned in the forms status bar.

Fujitsu Services Audit Extractor - Raise New Request

Request

Requester: Date Received:

Catalogue Entry: Date Required:

Receipt Reference:

Access Reason

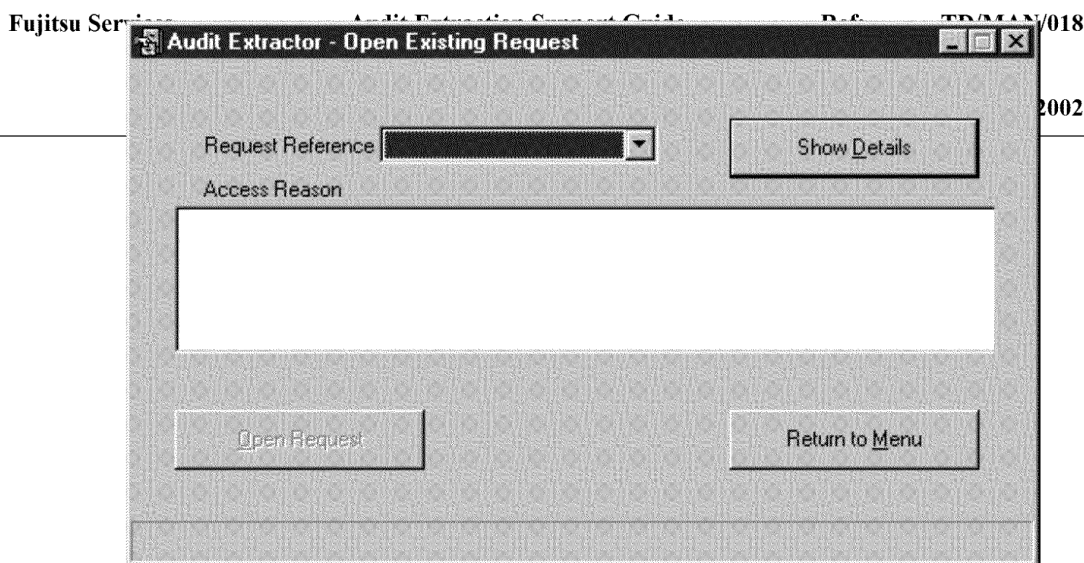
Specify Selection Criteria Save Request Return to Menu

Save completed

User input restrictions:

<i>Requester</i>	Choice limited to contents of drop down list
<i>Catalogue Entry:</i>	Limited to 50 characters
<i>Receipt Reference:</i>	Limited to 50 characters
<i>Date Received:</i>	Must pre-date the current date. Date format dd/mm/yy or dd/mm/yyyy
<i>Date Required:</i>	Date format dd/mm/yy or dd/mm/yyyy
<i>Access reason:</i>	Limited to 255 characters

2.2.1.1.9 frmOpen



This form is displayed by selecting the 'Open' option from the Request menu on the form *frmMenus*. Form *frmOpen* allows the user to open an existing ARQ. The command button 'Open Request' is not available for the user to 'click' until an ARQ has been selected. Any contents displayed in 'Access Reason' are not available for editing by the user.

The user is able to select an ARQ to open from the list of available ARQ's from the drop down list box control. ARQ's that are currently opened by other users or have previously been 'Closed' are not included in the list as available for selection

When the user presses the 'Open Request' button an appropriate form will be displayed. For example, if only Request details have been supplied so far then the form *frmSelect* will be displayed so the user can supply selection criteria. Alternatively, if files have already been restored for this Request then the form *frmFilesFound* form will be displayed.

Clicking the 'Show Details' button causes the form *frmDetails* to be displayed. (see 0).

Error / progress messages are output to the status line at the bottom of the form.

2.2.1.1.10 frmRestoreTMS

Fujitsu Service

Audit Extractor - Generate Riposte MessageStore on Server

Data centre: Bootle RFI: FEL01006B

Start Date for messages: End Date for messages:

Post Office FAD Code: Add -> <- Delete

List of FAD Codes:

Generate MessageStore LogonDataCentre

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This form is displayed by the user selecting the 'Generate MessageStore' choice from the TMS menu option on the menu-bar within form *frmFilesFound*.

The user can specify the inclusive start and end dates for messages and also the Post Offices for which information is to be selected.

The 'Add' and 'Delete' buttons add or delete a Post Office FAD Code to or from the list. A default value of 'ALL' within the 'Post OfficeFAD code' input box is also valid. The 'Add' button adds the value on its left, to the list on its right. The 'Delete' button removes the selected value from the list on its right.

The user is able to enter a FAD code into the 'Post Office FAD code' input box enabling the entered value to be added to the 'List of FAD codes' through clicking the 'Add' button.

The user has the option to create a new Riposte Message Store on the Archive Server ('Generate Message Store') or return to close the form without updating the Riposte Message Store ('LogonDataCentre').

As the user may have several instances of the application running at any one time, the Data centre and ARQ reference appear prominently on the form to act as an '*Aide memoire*' for the user.

Error / progress messages are output to the status line at the bottom of the form.

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User input restrictions:

<i>Start Date:</i>	Date format dd/mm/yy or dd/mm/yyyy
<i>End Date:</i>	Date format dd/mm/yy or dd/mm/yyyy
	Must post-date 'Start Date'
	Must pre-date current date
<i>Post Office FAD code:</i>	Must contain exactly 6 numeric characters

2.2.1.1.11 frmSelect

Audit Extractor - Specify Selection Criteria for Request

Selection Criteria for RFI Reference FEL01002W

Time Period Required

From Date To Date

File Source Required

Audit Point Selection Criteria

Audit Point	Audit Sub Point	FAD Code

< Update

FileName Template

Search for Files Save Selection Criteria Return to Menu

The form *frmSelect* may be displayed by one of three methods:

- Selecting the 'New' option from the Request menu on the form *frmMenus*.
- Selecting the 'Open' button on the form *frmOpen*.
- Selecting the 'Amend Search Criteria' button on the form *frmFilesFound*.

Form *frmSelect* allows the user to specify the criteria that will be used to determine which file names will be presented to the user as possibly useful audit files. The dates given in 'Time Period' are inclusive

Details within the 'Audit Point Selection Criteria' region cannot be directly edited on this form. Fine tuning of search criteria e.g. to declare the Audit Points and Sub Points to be associated with the current request, the user can press the 'Update' button to the right of the region.

This will display the form *frmSetAuditPoints*. (see 2.2.1.1.11).

The command buttons functionality below enables the user to:

'Return to Menu' Cancels the creation or update of selection criteria. If fields have been updated the user is prompted to confirm the deletion and loss prior to closure.

'Save Selection Criteria' Save the selection criteria for the ARQ.

‘Search for Files’ This option causes the AEC generate a list of files that satisfy the selection criteria supplied. When the list of files is available the form *frmFilesFound* is displayed.

Error / progress messages are output to the status line at the bottom of the form.

User input restrictions:

<i>From Date:</i>	Date format dd/mm/yy or dd/mm/yyyy Must pre-date 'To Date'
<i>To Date:</i>	Date format dd/mm/yy or dd/mm/yyyy Must post-date or equal 'From Date' Must pre-date equal current date

2.2.1.1.12 frmSetAuditPoints

Form *frmSetAuditPoints* is displayed when the user presses the ‘Update’ button on form *frmSelect*. (see 2.2.1.1.10 *frmSelect*).

Using this form the user is able to supply Audit Points and Audit Sub Points as selection criteria. They may be supplied directly by entering values in the ‘Audit Point’ and ‘Sub Point’ fields. The user clicks the ‘Add’ button after input to populate the user-defined list on the right hand side of the form.

Additionally the user can add criteria indirectly by entering a Post Office FAD Code. After entering a numerical six digit FAD code and clicking the 'Add' button the cursor is temporarily replaced with an hourglass and the user is locked from further interaction with AEC whilst the addition runs. The status-bar informs the user of progress.

When the 'normal' pointer returns, the user is once more able to operate the AEC. At this point either the ClusterID values will have been extracted and added within the 'List of current Audit Point Selection' region, or a message box opened displaying:

"No cluster id's have been found specified criteria, on host: X "

Values may be deleted from the List View control by highlighting the relevant entries and pressing the 'Delete' button.

The 'Post Office FAD Code' is used to determine which Clusters should be used as an Audit Sub Point, up to 9 Clusters are allowed, each duplicated at the Wigan and Bootle servers. The Sub Point generated is dependant on the Data Centre specified at logon (Wigan or Bootle) so that if user is logged on to Wigan, a Sub Point of say 'Cluster1B' cannot be generated, only 'Cluster1W'.

The drop down list for Audit Sub Point is dependent on the value in Audit Point.

Duplicate values are allowed in the 'List of current Audit Point Selection' region. This allows several Post Office FAD codes to be added all of which relate to the same Cluster and thus to the same Audit Sub Point.

When all required Audit Points have been specified the user presses the 'Return' button to return to the Criteria control on the frmSelect form.

2.2.1.1.13 frmDetails

Fujitsu Services

Audit Extractor - Details of Current Request
Request Details for RFI Reference FEL01002W

Requester **Date Received**
Catalogue Entry **Date Required**
Receipt Reference
Access Reason

Selection Criteria for RFI Reference FEL01002W : New:FileList

Time Period Required
From Date **To Date**

File Source Required
Audit Point Selection Criteria

Audit Point	Audit Sub Point	FAD Code

FileName Template

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This form is displayed to the user when clicking the 'Show Details' command button on either form *frmOpen*, or form *frmClose*. All data displayed on the form is unable to be edited by the user.

The 'Close' button returns the user to form originating the 'Show Details' request, which will be either *frmOpen* or *frmClose*.

Error / progress messages are output to the status line at the bottom of the form.

2.2.1.1.14 frmShowStatus

Status

Request Reference: OTH3006B

Start date	End date	Command	Instance	State	Response message
15/07/02 14:12:22	15/07/02 14:12:26	Recover files	41	Processing	
09/05/02 15:54:30	09/05/02 15:55:46	Recover files	39	ProcessOK	
09/05/02 15:48:37	09/05/02 15:49:25	File sizes	38	ProcessOK	
09/05/02 15:10:50	09/05/02 15:11:01	File Status	37	ProcessOK	
09/05/02 15:09:33	09/05/02 15:09:54	File Status	36	ProcessOK	
09/05/02 15:07:41	09/05/02 15:09:05	Recover files	35	ProcessOK	
09/05/02 15:07:20	09/05/02 15:07:23	File Status	34	ProcessOK	
09/05/02 14:58:17	09/05/02 14:58:34	File Status	33	ProcessOK	
09/05/02 14:55:34	09/05/02 14:56:21	Recover files	32	ProcessOK	
09/05/02 14:53:27	09/05/02 14:53:27	File Status	31	ProcessOK	

Refresh Exit

This form is displayed by selecting the 'Check Requests' choice from the Requests menu option on the menu-bar within form *frmFilesFound*. Closure and return to the *frmFileFound* is via the 'Exit' button. All form does not allow any user editing of content.

The form provides a 'snapshot' of the level of progression an action on an ARQ has achieved combined with details of the requested action. Upon clicking the 'Refresh' button values on the form are updated.

In the above example for ARQ 'OTH3006B' for instance 41 the user requested recovery of files at 14:12:22 on 15th July 2002 for which status of the required action, 'Processing', indicates the process had started and was still running at the time the form was opened or refreshed.

2.2.1.2 Server based components

2.2.1.2.1 Executables

<u>Name:</u>	<u>Level:</u> **	<u>Called by:</u>	<u>Language</u>
AgentGetID.exe	D	NWB_Get_ClusterID	C/C++
AgentLoadAuditData.exe	D	NWB_Legato_TMS_Generate.exe	C/C++
Build_Oracle_Table.exe	C	BuildOracle.exe	C/C++
CenteraDelete.exe	B	Maestro scheduling	VB
CloseTidyLog.exe	B	ExtractorLink.exe *	VB
ClusterID.exe	B	ExtractorLink.exe *	VB
CreateDir .exe	B	ExtractorLink.exe *	VB
ExtractorLink.exe	A	form <i>frmFilesFound</i>	VB
FileSizes.exe	B	ExtractorLink.exe *	VB
LegatoBarcode.exe	D	LegatoVolumeCmd.exe	C/C++

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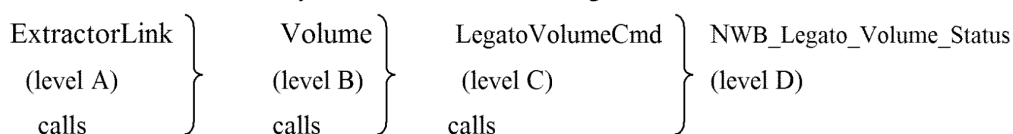
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LegatoFileSizeCmd.exe	C	FileSizes.exe	C/C++
LegatoRecoverCmd.exe	C	Recover.exe	C/C++
LegatoVolumeCmd.exe	C	Volume.exe	C/C++
LogFailure.exe	B	ExtractorLink.exe *	VB
NWB_Centera_Delete.exe	C	CenteraDelete.exe	C/C++
NWB_Get_ClusterID	C	ClusterID.exe	C/C++
NWB_Legato_FileSize.exe	D	LegatoFileSizeCmd.exe	C/C++
NWB_Legato_Recover.exe	D	LegatoRecoverCmd.exe	C/C++
NWB_Legato_TMS_Clear.exe	C	TMSClear.exe	C/C++
NWB_Legato_TMS_Generate.exe	C	TMSGenerate.exe	C/C++
NWB_Legato_Volume_Status.exe	D	LegatoVolumeCmd.exe	C/C++
BuildOracle.exe	B	ExtractorLink.exe *	VB
Recover.exe	B	ExtractorLink.exe *	VB
ResetRiposte.exe	D	NWB_Legato_TMS_Clear.exe	C/C++
TMSClear.exe	B	ExtractorLink.exe *	VB
TMSGenerate.exe	B	ExtractorLink.exe *	VB
UpdatAP.exe	B	Maestro scheduling	VB
Volume.exe	B	ExtractorLink.exe *	VB
XplorerGetID.exe	D	NWB_Get_ClusterID	C/C++

*originated by user action on form *frmFilesFound*

** relates to the hierarchy of called executables e.g.



2.1.1.1.2 Databases

Two MS SQLServer2000 databases 'RFISQL', 'SEALERSQL' are referenced by AEC and the server based executables above.

3.0 Standards and Languages

The Visual Basic (VB) components were developed using Microsoft Visual Basic for 32-bit Windows Development, release 6.0 Enterprise Edition. The C and C++ elements of the application are developed using Microsoft Visual C++, release 6.0 Enterprise Edition from Microsoft Developer Studio 97.

All client-side code has been developed in VB. the choice of language for the development of the server-based executables are indicated by 'VB' and 'C/C++' in *2.2.1.2.1 Executables* above.

3.1 VisualSouceSafe (VSS)

Modules are held under the path:

\\CMServer\VSS-InfDom\Infrastructure\Audit\AuditExtraction_CenteraPhase2

3.1.1 AEC

The code modules are held as follows, under the path above (see 3.1 VisualSouceSafe (VSS)).

\\ClientServer\Client\

3.1.2 Server based executables

The code modules are held as follows, under the path above (see 3.1 VisualSouceSafe (VSS)).

<u>Name:</u>	<u>Sub-path</u>
AgentGetID.exe	\\MSAgentGetID\Release
AgentLoadAuditData.exe	\\MSAgentLoadAuditData\Release
Build_Oracle_Table.exe	\\Build_Oracle_Table\Release
BuildOracle.exe	\\ExtractorLink\OracleBuild
CenteraDelete.exe	\\ExtractorLink\CenteraDelete
CloseTidyLog.exe	\\ExtractorLink\CloseLogTidy
ClusterID.exe	\\ExtractorLink\GetClusterID
CreateDir.exe	\\ExtractorLink\CreateDir
ExtractorLink.exe	\\ExtractorLink

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FileSizes.exe	\ExtractorLink\FileSizes
LegatoBarcode.exe	\LegatoBarcodeCmd\Release
LegatoFileSizeCmd.exe	\LegatoFileSizeCmd\Release
LegatoRecoverCmd.exe	\LegatoRecoverCmd\Release
LegatoVolumeCmd.exe	\LegatoVolumeCmd\Release
LogFailure.exe	\ExtractorLink\LogFailure
NWB_Centera_Delete.exe	\NWB_Centera_Delete\Release
NWB_Get_ClusterID	\NWB_Get_ClusterID
NWB_Legato_FileSize.exe	\NWB_Legato_FileSize\Release
NWB_Legato_Recover.exe	\NWB_Legato_Recover\Release
NWB_Legato_TMS_Clear.exe	\NWB_Legato_TMS_Clear\Release
NWB_Legato_TMS_Generate.exe	\NWB_Legato_TMS_Generate\Release
NWB_Legato_Volume_Status.exe	\NWB_Legato_Volume_Status\Release
Recover.exe	\ExtractorLink\Recover
ResetRiposte.exe	\MS ResetRiposte\Release
TMSClear.exe	\ExtractorLink\ClearMessageStore
TMSGenerate.exe	\ExtractorLink\GenerateMsgStore
UpdatAP.exe	\ExtractorLink\UpdateAuditPoints
Volume.exe	\ExtractorLink\VolumeStatus
XplorerGetID.exe	\XplorerGetID\Release

3.1.3 Databases

The databases are held as follows, under the path above (see 3.1 VisualSourceSafe (VSS)).

<i>Name:</i>	<i>Sub-path</i>
RFISQL	\RFISQL
SEALERSQL	\SEALERSQL

4.0 Code Paths

4.1 AEC

See 2.2.1 Client side

4.2 Server based executables

A trigger mechanism held within the table *FilesFoundConsole* in the SQLServer2000 database fires upon when a new record is added to the table. The trigger causes the server based executable 'ExtractorLink.exe' to start.

'ExtractorLink.exe' in turn calls lower a level executable depending on field values of the new record being added.

4.2.1 AEC generating records

When the AEC adds a record to the table *FilesFoundConsole*, 'ExtractorLink.exe' is started and in turn calls a lower level executable (level B) dependant upon the value of the field 'CmdUsedID' for the AEC added record.

<u>CmdUsedID</u>	<u>Called 'exe' (Level B)</u>
2	FileStatus.exe
3	Volume.exe
4	FileSizes.exe
5	TMSClear.exe
6	TMSGenerate.exe
7	ClusterID.exe
8	CreateDir.exe
14	BuildOracle.exe

The called 'exe's' above, in turn call further executables (Level C) detailed in 2.2.1.2.1 *Executables*. ExtractorLink.exe, level B and level C executables run asynchronously.

4.2.2 System scheduled executables

System fired executables are started through scheduled jobs within the RFISQL database adding a record to the table *FilesFoundConsole*. 'ExtractorLink.exe' is started and in turn calls a lower level executable (level B) dependant upon the value of the field 'CmdUsedID' for the system added record.

<u>CmdUsedID</u>	<u>Called 'exe' (Level B)</u>
10	UpdatAP.exe

13

CenteraDelete.exe

ExtractorLink.exe and level B executables run asynchronously. Job scheduling is undertaken via Maestro.

5.0 Errors

5.1 Exit and Event Codes

5.1.1 AEC

Errors in the executables instigated indirectly through AEC are visible to the user by way of form *frmShowStatus* (see 2.2.1.1.13 *frmShowStatus*) located via the menu-bar item 'Actions' sub-menu item 'Check Actions' on form *frmFilesFound*.

Errors generated by AEC are advised to the user via message boxes and WindowsNT Event Log entries are created on the user workstation.

5.1.2 Server based executables

All errors generated cause WindowsNT Event Log entries to be created.

5.2 Deficiencies

The AuditExtractor mechanism uses a 'flag' system within the RFISQL database to mark ARQ's as active (in use) or otherwise (free). Any problem with this 'flag' system may arise if, say, a link crashes and leaves a specific ARQ marked as active. It would no longer be accessible to any user.

Additionally, there was no mechanism for adding, deleting or modifying the 'ARQ Requester ID' value in the Requesters table.

To redress these deficiencies an Administrative 'Toolkit' has been developed. (PC0080034).

5.3 Clearance Dates

6th January 2003

5.4 Work Rounds

Record addition or amendment through manual access to the RFISQL database will in addition to the 'Administrators Toolkit' circumvent the deficiencies above.

6.0 Messages

6.1 Internal Message Communications

The AEC and all executables run as standalone asynchronous processes.

6.2 Run Time Communications

Communication between AEC and the server-based executables is via records and/or field values being created or amended in the RFISQL database.

The server-based executables communicate between themselves by use of text-files. These are first written to a specified location that a subsequently called executable then references and amends. The calling executable then uses the changes made to the text-file (see TD/LLD/013).

Whilst the executables are running asynchronously use is made of the Windows 'ProcessId' and 'handle' facilities, allowing monitoring of called executables to be performed.

7.0 API

The server based executable 'Build_Oracle_Table.exe' interfaces to STDC001.exe located at: D:\Archiveserver.

The 'Legato Networker' command line interface is used to invoke 'Recover'.

8.0 Support Route

1st line support to ISD BELFAST

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2nd to 4th line support-line route direct to Audit team at FEL01 using POST OFFICE ACCOUNT's PINICL system.