



EMV – Banking and Retail

NBX - FI Reconciliation and Settlement File Format AIS

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**FI Reconciliation and
Settlement File Format AIS**
Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

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1 Document Control

1.1 Document Information

Horizon Release No:	T86
Document Title:	EMV Banking and Retail: NBX - FI Reconciliation and Settlement File Format AIS
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Abstract:	This document details the application interface for FI reconciliation and settlement between the Horizon domain and Post Office Card Account or Alliance and Leicester.
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Contributors:	
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Table 1: Document Information

1.2 Document History

Version	Date	Reason for Issue	Associated WP / CT
0.1	5 Nov 2003	First working draft. Based on document produced by IBM entitled "NBE – FI Reconciliation and Settlement File Format AIS" version 2.0	
0.2	27 Jul 2004	Updated to reflect the planned implementation of the NBX application.	
0.3	25 Aug 2004	Updated to reflect the comments received from version 0.2. Also includes changes in the format for the Summary Detail Record and Sub-total Record.	
2.1	28 Apr 2008	Updated to include Withdrawal Corrections, implemented as Deposits.	



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

2.2	19 May 2008	Names of approvers and reviewers amended to reflect changes of personnel in external organisations.	
2.3	9 June 2008	Further corrections to approvers and reviewers as a result of comments.	
3.0	30 Jun 2008	Issued for approval Minor corrections from review	

Table 2: Document History

1.3 Change Process

Any changes to this issued version of this document will be made, controlled and distributed by: -

Bob.Booth:

1.4 Review Details

Review Comments by :	
Review Comments to :	Chris.Bailey: <input type="text" value="GRO"/>

Mandatory Review Authority	Name
Post Office Ltd	James Keenan, Richard Cowen
Fujitsu Services Ltd	John Burton, David Johns
JPMorgan Europe Limited	Mary McMichael, Susan Stewart
EDS	Mark Geldart
Alliance and Leicester	Ian Antrobus
Optional Review / Issued for Information	
Post Office Ltd	Bob Booth
Fujitsu Services Ltd	Gareth Jenkins, Andy Williams
JPMorgan Europe Limited	Derek Smallworth
EDS	Keith Peers
Alliance and Leicester	

**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

1.5 Changes in this Version

Version	Changes
3.0	Issued for Approval Clarification of description of RECON_CUM_TOTAL to remove irrelevant and confusing reference to sign, in 3 places.

Table 3: Changes in this Version

1.6 Key Contacts

Name	Position	Phone Number
Bob Booth	Solutions Architect	GRO

Table 4: Key Contacts



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

1.7 Associated Documents

	Reference	Version	Date	Title	Source
1.	RS/POL/007			Community Information Security Policy – Network Banking Automation	Post Office
2.	ISO8583		1987	Bank Card Originated Messages	
3.	NB/IFS/027			NBX – POCA Technical Interface Specification (TIS)	Post Office
4.	NB/IFS/025			Horizon to CAPO AIS	Post Office
5.	NB/IFS/031			Horizon - Card Account Mapping	Post Office
6.	NB/IFS/029			NBX - A&L Technical Interface Specification (TIS)	Post Office
7.	NB/IFS/026			Horizon to A&L AIS	Post Office
8.	NB/IFS/034			Horizon - A&L Mapping	Post Office
9.	CS/OLA/051			Operating Level Agreement for Network Banking between Fujitsu Services and CAPO (EDS)	Fujitsu Services
10.	CS/OLA/052			Operating Level Agreement for Network Banking between Fujitsu Services and Alliance & Leicester	Fujitsu Services

Table 5: Associated Documents

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



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

Table of Contents

1	DOCUMENT CONTROL	2
1.1	Document Information	2
1.2	Document History	2
1.3	Change Process	3
1.4	Review Details	3
1.5	Changes in this Version	3
1.6	Key Contacts	3
1.7	Associated Documents	3
2	INTRODUCTION	3
2.1	Purpose	3
2.2	Scope	3
2.3	Structure	3
2.4	Terms and Abbreviations	3
3	OVERVIEW OF RECONCILIATION INTERFACE	3
3.1	Data Description	3
3.2	Derivation and Use of Data	3
3.2.1	File Description	3
3.2.2	Selection of Data	3
3.3	Assumptions	3
4	RECONCILIATION FILE FORMAT	3
4.1	Data Item List	3
4.1.1	General Record Element Definitions	3
4.1.2	File Record Format Types	3
4.1.3	Reconciliation File Data Elements	3
4.1.4	File Elements	3
4.1.5	Relationship of Totals	3
4.2	Record Specification	3
4.2.1	Header-Record	3
4.2.2	Detail Record	3
4.2.3	Transaction Sub-total Record	3
4.2.4	Summary Detail Record	3

**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.2.5	Summary Trailer Record	3
4.2.6	File Trailer Record	3
5	TRANSFER STRUCTURE	3
5.1	Transfer Grouping	3
5.2	File Structure	3
5.2.1	File Attributes	3
5.2.2	Record Summary	3
6	SECURITY OF TRANSMITTED DATA	3
6.1	Overview	3
7	OPERATIONAL PROCEDURES	3
7.1	Overview	3
7.2	Processing Cycles	3
7.3	Transfer Initiation and Protocol	3
8	APPENDIX A: A&L MAPPING	3
9	APPENDIX B: CAPO MAPPING	3
10	APPENDIX C – END OF DAY EVENTS	3
11	APPENDIX D – VOLUMETRICS	3
11.1	Settlement & Reconciliation Files	3

**FI Reconciliation and
Settlement File Format AIS****Project:** EMV – Banking and Retail**Doc Ref:** NB/IFS/030**COMMERCIAL IN CONFIDENCE**

2 Introduction

2.1 Purpose

The purpose of this document is:

- To specify the End of Day Reconciliation and Settlement file format between NBX and the Settlement Slave Financial Institutions (A&L and CAPO), reflecting the role of NBX as Settlement Master (see section 2.4).
- To agree the NBX – Reconciliation File format with the interested parties.
- To provide a consistent communications vehicle amongst the development teams which have responsibility for developing the various components comprising the application.

2.2 Scope

This document applies to the interfaces between the NBX and Financial Institutions where the NBX is acting as the Master for reconciliation and settlement. It contains the detail of the Reconciliation and Settlement file records sufficient to support the financial services being delivered by the NBX.

The Reconciliation (REC) File contains only Financial Transactions e.g. those transactions that change a financial position - such as Withdrawal, Withdrawal Reversal, Deposit and Deposit Reversal. The purpose of the file is to allow the reconciliation of all Financial Transactions between the NBX and each of the connected Financial Institutions. The REC file does not include certain transactions with no financial impact, such as Balance Enquiry and Pin Change, and thus does not provide a vehicle for calculating total transaction volume.

This AIS will be used for both magnetic cards and for EMV cards; no EMV fields are included because they play no part in FI reconciliation or settlement.

2.3 Structure

Section 2 This section contains the Introduction

Section 3 contains a high level overview of the Reconciliation Interface.

Section 4 contains a detailed description of the reconciliation file format

Section 5 contains details of the transfer structure relating to the files created for this interface.

Section 6 contains details of security of transmitted data relating to this interface.

Section 7 contains details of Operational Procedures relating to this interface.

Section 8 Appendix A contains the mapping of A&L data to the Reconciliation file

Section 9 Appendix B contains the mapping of CA data to the Reconciliation file

Section 10 Appendix C contains a table of the events and timings related to End of Day processing

Section 11 Appendix D contains volumetrics for each of the Reconciliation Files



***FI Reconciliation and
Settlement File Format AIS***

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

2.4 Terms and Abbreviations

The terms Master and Slave are used within this document to define the relationship between the NBX and the Financial Institution for Reconciliation and Settlement. For this document the NBX is the Master i.e. the NBX will provide the Slave Financial Institution with details of Reconciliation and Settlement based on transactions processed by the NBX for a settlement day. The Financial Institution will settle with Post Office on the basis of these totals. Procedures for investigation and reconciliation of differences between Post Office and the Financial Institution are outside the scope of this document.



3 Overview of Reconciliation Interface

3.1 Data Description

This interface describes the issue of reconciliation and settlement data at the end of each business day from the NBX for each of the slave Financial Institutions.

3.2 Derivation and Use of Data

The NBX logs details of all transactions during the business day.

At the end of the business day timed events at 20:00 trigger end of day messages to slave Financial Institutions to notify the FI that the NBX has started its End of Day processing for the current business day, and has changed to the next business day. 'End of day' messages to slave Financial Institution's are as specified within each of the NBX Financial Institution AIS documents. After the Agents have sent the End Of Day message to the FI all new transactions for that FI will have the new Settlement Date (incremented by 1 day). Within the NBX all messages have a Settlement Date as day, month and year only. The Settlement Date is equivalent to the business day and spans from 20:00 the previous day to 19:59:59 current day (Settlement Date) and is also the same as NBX_DATE on the Reconciliation File. All messages within a unique transaction (i.e. R3, A1, E1) have the same Receipt Date (including time) and Settlement Date.

Eg. Business Day from 24/08/2004 20.00.00 to 25/08/2004 19:59:59 Settlement Date = 25/08/2004

There are configurable cut off times (eg.20.10) used to specify the time until a reversal can be included in the file for the Settlement Date being settled.

The Agents store transaction information in a database. The Reconciliation and Settlement file generation process is triggered off by the change over to the new business day and after the End of Day messages have been sent to the Financial Institutions (CAPO and A&L) from the NBX.

In the unlikely situation of when a transaction is missed from the previous reconciliation the NBX will include the transaction on the next days reconciliation file. These transactions plus late reversals will relate to a different business day(Settlement Date) to the date of the file.

The NBX stores the transactions records and extracts the records needed for today's settlement into the Reconciliation File. NBX determines record selection for inclusion in the REC file.

Records included in the REC file:

- Every Financial Transaction for the Settlement Date (from 20:00 the previous day to 19:59:59 of the current day – local time) known at the time of file generation.
- Suspended Financial Transactions from the previous Settlement Day that were not included in the previous days Reconciliation File.
- Reversal messages received up to 20.10 with a Settlement Date equal to the one being reconciled. These Reversals do have a corresponding authorisation record on the reconciliation File.
- Late Reversals (as configured - currently up to 5 days old). These Reversals do not have a corresponding Authorisation record on today's Reconciliation File, the Authorisation record will have been on a previous Reconciliation File.

**FI Reconciliation and
Settlement File Format AIS****Project:** EMV – Banking and Retail**Doc Ref:** NB/IFS/030**COMMERCIAL IN CONFIDENCE**

These time periods are defined by parameters.

The amount requested for settlement by Post Office Ltd will be in line with the contents of the Reconciliation file, plus any manual adjustments that are necessary.

Appendix C (section 10) contains a table of the events and timings related to End of Day processing.

3.2.1 File Description

The Reconciliation and Settlement File will contain a file header at the start of each file, followed by a detail record for every financial transaction that has been acquired by the NBX for the settlement day including failed and declined transactions. Non-financial i.e. Balance enquiry and PIN Change Transactions are NOT included in this file.

A transaction sub-total record will be written every forty transactions and a file summary is written at the end of the file, following the last sub-total record. This will consist of a single line for the interface. A summary trailer detailing the net position of the Client follows the summary line records. The file is terminated with a trailer containing a count of all records in the file with the exception on the header and trailer records.

A detailed description of these records can be found in Section 4.



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

3.2.2 Selection of Data

Withdrawal and deposit transactions are selected where an [R3] and an [A1] exists for a transaction for the current Settlement_Date or current Settlement_Date – 1 in the case of suspended transactions.

Reversals are selected from 20:00 on settlement day A to 20:10 on settlement day B, or where Reversals are received late by the NBX (where the [R3] transaction was conducted up to 5 days earlier). Selection between 20:00 Day B and 20:10 Day B is based on the presence of a corresponding [R3/A1] approved transaction having taken place in Settlement Day A or earlier (up to 5 days)

Late reversals will appear at the beginning of the reconciliation file because the file is written in Receipt_Date, Recon_Trace_Number sequence.

If a transaction is reversed then two records will be written to the reconciliation file, one for the authorisation and one for the reversal. If the reversal is late then the reversal record would be on a different Reconciliation file than the authorisation record. All Recon_Amt_Acquired fields are spaces as all the values go into the Recon_Amt_Issued field. Those authorisations that have failed will also be written to the reconciliation file but the amount will be entered into the Recon_Amt_Failed field file (see section 4.2.2). All negative amounts (deposits and withdrawal reversals) will have a minus sign in front of the value, positive values will not have a sign.

The following table gives an example of Financial Transactions and how the dates are used to build up the Reconciliation File. The reconciliation process will consider each entry in the table below and build the Reconciliation file for each of the Slave FIs from these entries – see Table 6

Description of table elements

Receipt Date: The local date/time on the customer receipt The time element is entered on the detail record in the file = RECON-TIME

R1 Created: The time the transaction was requested. Always the same as Receipt Date. Local Date/Time

R3 Settlement Date: The day (no time) that the transaction will be reconciled, taken from the R3 message. Normally the same as the File Settlement Date.

E1 Sent: The transmission time of the reversal request message E1. Local Date/Time.

File Settlement NBX Date: The date on the Settlement File Header record, the date of the Reconciliation with no time element



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

Number	Receipt_Date	R1 Created	R3 Settlement_Date	EOD sent To FI's	E1 Sent	File Settlement NBX Date	Slave FI Reconciliation File	Comments
1.	20:07:2004 19:31:30	20:07:2004 19:31:30	20:07:2004 00:00:00			20:07:2004	Day 1	Approved Withdrawal Transaction
2.	20:07:2004 19:32:00	20:07:2004 19:32:00	20:07:2004 00:00:00			20:07:2004	Day 1	Approved Withdrawal Transaction
3.	20:07:2004 19:32:00	20:07:2004 19:32:00	20:07:2004 00:00:00		20:07:2004 19:31:52	20:07:2004	Day 1	Reversal of Approved Transaction Row 2
4.	20:07:2004 19:59:30	20:07:2004 19:59:30	20:07:2004 00:00:00			20:07:2004	Day 1	Approved Withdrawal Transaction
5.	20:07:2004 19:59:59	20:07:2004 19:59:59	20:07:2004 00:00:00			20:07:2004	Day 1	Declined Withdrawal Transaction
6.				20:07:2004 20:00:00				
7.	20:07:2004 19:59:30		20:07:2004 00:00:00		20:07:2004 20:06:13	20:07:2004	Day 1 *	Reversal of Approved Transaction – for Row 4
8.	20:07:2004 20:00:15	20:07:2004 20:00:15	21:07:2004 00:00:00			21:07:2004	Day 2	Approved Withdrawal Transaction
9.	20:07:2004 19:30:30		20:07:2004 00:00:00		20:07:2004 20:11:04 **	21:07:2004	Day 2*	Reversal of Approved Transaction – Row 1 This will be shown as a 'D' type record as the reversal record will be on the Reconciliation File the day after the authorisation record.
10.	20:07:2004 20:01:01	20:07:2004 20:01:51	21:07:2004 00:00:00			21:07:2004	Day 2 *	Approved Withdrawal Transaction
11.	20:07:2004 20:05:02	20:07:2004 20:05:09	21:07:2004 00:00:00			21:07:2004	Day 2*	Approved Withdrawal Transaction
12.	20:07:2004 20:01:01		21:07:2004 00:00:00		20:07:2004 20:05:32	21:07:2004	Day 2*	Although the reversal is between 20:00:00 and 20:10:00 the R1 was sent after 19:59:59 – see Row 10

** Late reversal

Table 6: Transactions to be considered for Current Days Reconciliation Files for slave FIs



***FI Reconciliation and
Settlement File Format AIS***

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

3.3 Assumptions

- None



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4 Reconciliation File Format

4.1 Data Item List

4.1.1 General Record Element Definitions

The following sections define the list of reconciliation file data elements as they relate to each record format, together with which record they are present in.

4.1.2 File Record Format Types

The following records will be passed from the NBX to the Financial Institution Interface for Reconciliation and Settlement:

Message Type	Description
Header Record (HR)	Each file will contain 1 of these.
Transaction Detail Record (TDR)	Each file will consist of 0 or more detail records, one for each financial transaction, which took place during the business day. The Financial Transactions are Deposit, Deposit Reversal, Withdrawal (all types), and Withdrawal Reversal as appropriate to the FI.
Transaction Sub-Total Record (TSR)	Each file will contain 1 of these for every 40 records or less e.g. if the file contains 45 Transaction Detail Records then there would be a Transaction Sub-Total Record after 40 of the Transaction Detail Records followed by a further 5 TDR records and the another Transaction Sub-Total Record. The Transaction Sub-Total Record contains the Acquired Total, Issued Total and Failed Total
Summary Detail Record (SDR)	Each file will consist of a minimum of 1 of these. This record contains the Settlement Total for the FI Counterpart – currently n/a for Post Office Direct Interfaces CAPO and A&L as each direct interface currently does not connect to member banks, therefore there will only be 1 of these record types per file.
Summary Trailer Record (STR)	Each file will contain 1 of these. This record contains the Net Settlement Total for the FI.
File Trailer Record (FTR)	Each file will contain 1 of these. This record contains the total number of records on the file for the settlement date, excluding the header and trailer



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

Note: Where there are no transaction detail records for a business day a file containing no detail records will be produced. This file will contain a HR, TSR, SDR, STR and FTR record and totals must be zero.

4.1.3 Reconciliation File Data Elements

The reconciliation data elements used in the NBX – FI records are listed below.

The information presented here is also included in different contexts in other sections, mainly section 4.2. However, the information in this section 4.1 takes precedence over any other section, where the information is included.

The table in section 4.1.4 includes Reconciliation file element names, descriptions and the length (fixed) of each element. It should be noted that the acquirer fields would not be populated by this interface as the NBX is creating this file for an Issuer.

The entry in the format column corresponds to any of the abbreviations shown in the following table:

Abbreviation	Description
X(n)	Alpha Numeric characters with a length of n e.g. X(3) = alpha numeric with a length of 3
+(n)9.99	Signed Numeric characters only with 2 decimal places – the n in the brackets refers to the number of positions before the decimal place e.g. +6731678.50 = +(7)9.99. This type of field, represent a monetary value. Leading zeroes are suppressed, fields are aligned on the decimal point, signs are floating and currency fields do not have a currency symbol associated with them. This type of field is not packed.
9(n)	Unsigned numeric characters only with a length of n e.g. 345 = 9(3). This type of field represents a count of transactions. Leading zeroes are suppressed (except for RECOUNT-COUNT) and the field is not packed.
-(7).99	Signed numeric characters only with 2 decimal places. This amount is suppressed if the value is zero in addition leading zeroes are suppressed, fields are aligned on the decimal point, signs are floating and currency fields do not have a currency symbol associated with them. This type of field is not packed. In the field Recon-Amt-Issued, type -(7).99 for example, in the case of a negative value the sign takes one of the 10 characters, therefore -999999.99 being the maximum deposit while a withdrawal can exceed a million pounds.
-(n)9.99	Signed Numeric characters only with 2 decimal places – the n in brackets refers to the number of positions before the decimal place e.g. -6731678.50 = -(7) 9.99. This type of field, represent a monetary value. Leading zeroes are suppressed, fields are aligned on the decimal point, signs are floating and currency fields do not have a currency symbol associated with them. This type of field is not packed.



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.1.4 File Elements

4.1.4.1 Definitions

The following definitions are included here to provide clarity on the use of the terms Declined and Failed Transactions within the File Element Table:

- A Declined Transaction is a transaction which has not been approved by the Issuer for a reason which is indicated in the response code returned by the issuer e.g. Insufficient Funds; Stolen Card; expired Card etc
- A Failed Transaction is a transaction which has been declined e.g. this may be due to the Late Response to a withdrawal request; a format error in the response from the issuer; a key encryption error etc
- The Failed totals include both Declined and Failed Transactions as described above.
- Acquired Totals are currently not applicable for the purpose of the Reconciliation File – this file is always produced from the view of the recipient i.e. the Issuer.
- Issuer Totals are applicable to the Reconciliation File – this file is always produced from the view of the recipient i.e. the Issuer.

4.1.4.2 Abbreviations used within the Description field of the File Element Table.

Abbreviation	Description	Conventions
WDL	Withdrawal	Positive i.e. the value that the FI will owe the Post Office
REV	Withdrawal Reversal	Negative i.e. the value Post Office Limited owes the FI
DEP	Deposit	Negative i.e. the value Post Office Limited owes the FI
DRV	Deposit Reversal	Positive i.e. the value the FI owes Post Office Limited
M	Mandatory	
HR	Header Record	
TDR	Transaction Detail Record	
TSR	Transaction Sub Total Record	
SDR	Summary Detail Record	
STR	Summary Trailer Record	
FTR	File Trailer Record	



***FI Reconciliation and
Settlement File Format AIS***

Project: *EMV – Banking and Retail*

Doc Ref: *NB/IFS/030*

COMMERCIAL IN CONFIDENCE



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

File Element	Description	Format	Size	HR	TD R	TSR R	SD R	STR	FTR
ACQUIRED-TOTAL	Acquired sub-total. N/a for the NBX, as the recipient, slave FI, is an Issuer only.	-(7)9.99	11			M			
ASTERISK	Indicates an NBX generated reversal due to the inability to deliver 0210 approval messages to the acquirer i.e. Post Office Counters via Horizon.	X(1)	1		M				
CARDHOLDER: ISO PREFIX FILLER NUMBER	Cardholders Primary Account Number from the Request Message whether manual entry or card swipe i.e. from the PAN or Track 2 Data	X(6) X(1) X(13)	6 1 13		M				
FAILED-TOTAL	Failed sub total. This field contains the value of all transactions, which have failed and is accumulated from RECON-AMT-FAILED. The FAILED-TOTAL includes both declined and failed transactions.	-(7)9.99	11			M			
INSTITUTION-NAME	CONSIGNIA POST OFFICE'	X(24)	24				M		
ISO-NUMBER	Client ISO Number/ISO number of the destination FI i.e. this is the Client ISO Number agreed between the Master i.e. Post Office and the FI The A&L ISO Number 560372, the CAPO ISO number is 633641. On Summary Detail Record the ISO-NUMBER is 200040	9(6)	6	M			M		M
ISSUED-TOTAL	Issued sub-total. This is applicable to Slave FIs. This field contains the value of all issued transactions and is calculated as WDL minus REV minus DEP plus DRV. ISSUED-TOTAL does NOT include failed transactions	-(7)9.99	11			M			
NBX-DATE	NBX Business Date i.e. Settlement Date	9(6)	6	M					
NET-TOTAL	Net sub-total this is the SUM of ISSUED-TOTAL (and ACQUIRED-TOTAL) it does NOT include the FAILED-TOTAL	-(9)9.99	13			M			
RECON-ACQ-ID	Identifying IIN from NBX - Positions 2-7 of Acquiring Institution Identification Code (2200040000 for PO) which is set by the NBX from Reference Data	9(6)	6		M				
RECON-AMT- ACQUIRED	Transaction Amount if acquirer. Not applicable for the NBX, totals are produced from the perspective of the recipient not the NBX.	-(7).99	10		M				
RECON-AMT-ISSUED	Transaction Amount if issuer. This includes withdrawals and reversal and if applicable to the interface deposits and deposit reversals. RECON-AMT-ISSUED is applicable.	-(7).99	10		M				
RECON-AMT-FAILED	Transaction Amount for the failed transaction – this is the transaction amount for a declined or failed transactions	-(7).99	10		M				



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

RECORD-COUNT	Number of Records in File. (padded with zeros)	9(7)	7						M
RECON-CUM-TOTAL	Cumulative Value of Acquired and Issued Transactions calculated as WDL-REV-DEP+DRV For each detail record the RECON-CUM_TOTAL will be the accumulated from RECON-AMT-ISSUED (and RECON-AMT-ACQUIRED) value(s) for a slave FI. The RECON-AMT Failed is NOT included in this total.	-(9)9.99	13		M				
RECON-DATE	NBX Settlement Date	9(6)	6						M
RECON-FWD-ID	Identifying IIN from Forwarder	9(6)	6		M				
RECON-RESP-CODE	Response Code or Reversal Reason Code – see Mapping documents relevant to FI: A&L [Ref. 8], or CAPO [Ref.5]	X(2)	2		M				
RECON-TERM-ID	Outlet/Counter Identifier	X(11)	11		M				
RECON-TERM-SEQUENCE-NO	Bytes 7 to 12 of ISO field 37 Retrieval Reference Number	9(6)	6		M				
RECON-TIME	Time of the Transaction from the Request Message	9(6)	6		M				
RECON-TRACE-NUMBER	System Trace Audit Number (STAN) from the Request Message	9(6)	6		M				
RECON-TXN-TYPE	Description of the transaction type i.e. WDL=Withdrawal, REV=Reversal, DEP=Deposit, DRV=Deposit Reversal	X(3)	3		M				
SETTLEMENT-TOTAL	Net Position Against NBX the total of all issued (and acquired) transactions for the settlement date – it excludes failed transactions Note: <ul style="list-style-type: none"> The convention for this is Acquired total minus Issued total. For the slave FIs this should give a minus total (unless deposits value exceeds withdrawal) representing a debit to them in Settlement. Where the Interface is to a single bank then this value should equal the RECON-CUM-TOTAL on the final Detail Record. The SETTLEMENT-VALUE for the SDR and SDT records where there is an interface to a single bank from the NBX must be the same. 	+(9)9.99	13				M	M	



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.1.5 Relationship of Totals

This section describes in tabular form the relationship of each of the amount/total fields in the Transaction detail record (section 4.2.2); Transaction Sub-Total Record (section 4.2.3); the Summary Detail record (section 4.2.4); the Summary Trailer record (section 4.2.5) and the File Trailer record (section 4.2.6):

Record Type	Totals	Description
Transaction Detail Record (TDR)	RECON-AMT-ACQUIRED	The value of the successful Financial transaction if an acquirer N/a to NBX
	RECON-AMT-ISSUED	The value of the successful Financial transaction if an issuer
	RECON-AMT-FAILED	The value of all Failed and declined Transactions
	RECON-CUM-TOTAL	Accumulated Value of RECON-AMT-ACQUIRED – RECON-AMT-ISSUED
Transaction Sub-Total record (TSR)	ACQUIRED-TOTAL	Accumulated from RECON-AMT-ACQUIRED N/a to NBX. Always 0.00.
	ISSUED-TOTAL	Sum of successful financial Transactions i.e. RECON-AMT-ISSUED from the detail records
Summary Detail record (SDR)	SETTLEMENT-TOTAL	This must equal the sum of the ISSUED-TOTALs from all of the TSRs
Summary Trailer record (STR)	SETTLEMENT-TOTAL	This must equal the SETTLEMENT-TOTAL from the SDR
File Trailer record (FTR)	RECORD-COUNT	Number of Records on the file, excluding the header and trailer



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.2 Record Specification

This section contains the definition of each record type to be sent over this interface. The Field column lists those fields required for the record type by Reconciliation name, and relates to list in Section 4.1.4.

Records can be identified as follows:

Record Type	Record Identifier	Value(s)	Position	Format	Length
Header Record	ISO-NUMBER	<ul style="list-style-type: none"> A&L ISO Number is 560372 CAPO ISO number is 633641 	1-6	9(6)	6
Detail Record	RECON-TXN-TYPE	WDL REV DEP DRV	41-43	X(3)	3
Transaction Sub-Total Record	TSR-RECORD-IDENTIFIER	TOTALS	39-45	X(7)	7
Summary Detail	INSTITUTION-NAME	CONSIGNIA POST OFFICE'	29-52	X(14)	14
Summary Trailer Record	STR-RECORD-IDENTIFIER	NET SETTLEMENT	63-76	X(14)	14
File Trailer	FTR-RECORD-IDENTIFIER	RECORDS	22-28	X(7)	7

4.2.1 Header-Record

File Name: Reconciliation File	File Ref: RECONCILIATION	Notes:
Record Name: Header-Record	Record Size: 132 Bytes	



FI Reconciliation and Settlement File Format AIS

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

Field	Position		Length	Format	Value	Description
	From	To				
ISO-NUMBER	1	6	6	9(6)		This is the Client ISO Number agreed between the Master i.e. Post Office and the FI: <ul style="list-style-type: none"> • For A&L the ISO Number is 560372 • For CAPO the ISO number to use is 633641
FILLER	7	7	1	X(1)		
NBX-DATE	8	13	6	9(6)	DDMMYY	NBX Business Date i.e. Settlement Date
FILLER	14	132	119	X(119)		

4.2.2 Detail Record

The Reconciliation and Settlement file contains details of the amount issued, and failed for each withdrawal/deposit interaction. Detail records will be provided for each financial transaction, including reversals and failed transactions.

If an issuer's transaction response is timed out by the NBX and a late approval received and reversed by NBX, the initial withdrawal will be shown with the transaction amount in the RECON-AMT-FAILED field.

Details of the fields described below can be found in section 4.1.4, and the relationship to the online messages is shown in Appendices A (section 8) and B (section 9).

Further information regarding the mapping relationship is contained in NBX Mapping documents [Ref. 5] and [Ref.8]



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

File Name: Reconciliation File	File Ref: RECONCILIATION		Notes:			
	Record Name: Detail-Record (1)	Record Size: 132 Bytes				
Field	Position		Length	Format	Value	Description
	From	To				
RECON-TIME	1	6	6	9(6)	hhmmss	Time of the Transaction from the Request [R1] Message
FILLER	7	9	3	X(3)		
RECON-TRACE-NUMBER	10	15	6	9(6)		STAN from the request [R3] message to the issuer NB this field will not be populated if the message is declined by the NBX.
Filler	16	18	3	X(3)		
CARDHOLDER: ISO PREFIX FILLER NUMBER	19 25 26	24 25 38	6 1 13	X(6) X(1) X(13)		Cardholder's Primary Account Number from the request [R1] message – this will be from either the Pan field or the Track 2 data field depending on whether the card was swiped or manually entered.
FILLER	39	40	2	X(2)		
RECON-TXN-TYPE	41	43	3	X(3)	"WDL", "REV", "DEP" or "DRV"	Description of transaction type WDL Withdrawal REV Withdrawal Reversal DEP Deposit DRV Deposit Reversal
FILLER	44	46	3	X(3)		
RECON-AMT-ACQUIRED	47	56	10	-(7).99		Always spaces for CAPO and A&L.
FILLER	57	57	1	X(1)		



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

RECON-AMT-ISSUED	58	67	10	-(7).99		<ul style="list-style-type: none"> • Txn amount if issuer. Withdrawal will be shown as positive • Withdrawal Reversal as negative; • Deposit as negative • Deposit Reversal positive
FILLER	68	68	1	X(1)		
RECON-AMT-FAILED	69	78	10	-(7).99		Transaction amount for the failed transaction
FILLER	79	83	5	X(5)		
RECON-RESP-CODE	84	85	2	X(2)		Response Code or Reversal Reason Code - this is the response code provided by the Issuer, or the reversal reason code sent to the Issuer.
ASTERISK	86	86	1	X(1)	"*" OR "	Not applicable
FILLER	87	87	1	X(1)		
RECON-ACQ-ID	88	93	6	9(6)		Identifying IIN of the acquirer i.e. PO - 200040
FILLER	94	94	1	X(1)		
RECON-TERM-ID	95	10 5	11	X(11)		Outlet and Counter Identifier received in the [R1] message
RECON-FWD-ID	106	11 1	6	9(6)		Identifying IIN from Forwarder not applicable to NBX as Master
FILLER	112	11 2	1	X(1)		
RECON-TERM-SEQUENCE-NO	113	11 8	6	9(6)		Positions 7 – 12 of Retrieval Reference Number, populated by the NBX.
FILLER	119	11 9	1	X(1)		



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

RECON-CUM-TOTAL	120	13 2	13	-(9)9.99		Cumulative value of transaction. Excludes failed transactions.
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**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.2.3 Transaction Sub-total Record

File Name: Reconciliation File	File Ref: RECONCILIATION		Notes:			
Record Name: Transaction Subtotal	Record Size: 132 Bytes					
Field	Position		Length	Format	Value	Description
	From	To				
FILLER	1	38	38	X(38)		
TSR-RECORD-IDENTIFIER	39	45	7	X(7)	"TOTALS"	
ACQUIRED-TOTAL	46	56	11	-(7)9.99		Always 0.00
ISSUED-TOTAL	57	67	11	-(7)9.99		Issued sub-total WDL minus REV minus DEP plus DRV for all transactions acquired by the NBX
FAILED-TOTAL	68	78	11	-(7)9.99		The total of failed transactions declined by the issuer.
FILLER	79	107	29	X(29)		
FILLER	108	118	11	X(11)	"BATCH TOTAL"	
FILLER	119	119	1	X(1)		
NET-TOTAL	120	132	13	-(9)9.99		Net sub-total



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.2.4 Summary Detail Record

File Name: Reconciliation File	File Ref: RECONCILIATION			Notes:		
Record Name: Summary Detail	Record Size: 132 Bytes					
Field	Position		Length	Format	Value	Description
	From	To				
FILLER	1	28	28	X(28)		
INSTITUTION- NAME	29	52	24	X(24)		CONSIGNIA POST OFFICE'
FILLER	53	66	14	X(14)		
ISO-NUMBER	67	72	6	9(6)		200040
FILLER	73	81	9	X(9)		
SETTLEMENT- TOTAL	82	94	13	+(9)9.99		Net Position Against Counterpart (NBX)
FILLER	95	132	35	X(35)		



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.2.5 Summary Trailer Record

File Name: Reconciliation File	File Ref: RECONCILIATION		Notes:			
Record Name: Summary Trailer	Record Size: 132 Bytes					
Field	Position		Length	Format	Value	Description
	From	To				
FILLER	1	62	62	X(62)		
-STR-RECORD-IDENTIFIER	63	76	14	X(14)	"NET SETTLEMENT"	
FILLER	77	81	5	X(5)		
SETTLEMENT-TOTAL	82	94	13	+(9)9.99		Net Position Against NBX
FILLER	95	132	38	X(38)		



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

4.1.6 File Trailer Record

File Name: Reconciliation File	File Ref: RECONCILIATION		Notes:			
	Record Name: File Trailer	Record Size: 132 Bytes				
Field	Position		Length	Format	Value	Description
	From	To				
ISO-NUMBER	1	6	6	9(6)		Client's ISO Number e.g. A&L ISO Number is 560372 CAPO ISO number is 633641
FILLER	7	7	1	X(1)		
RECON-DATE	8	13	6	9(6)	DDMMYY	NBX Settlement Date
RECORD-COUNT	14	20	7	9(7)		No. Of Records In File. With Leading Zeros.
FILLER	21	21	1	X(1)		
FTR-RECORD-IDENTIFIER	22	28	7	X(7)	"RECORDS"	
FILLER	29	132	104	X(104)		



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

5 Transfer Structure

5.1 Transfer Grouping

This transfer supports the file transfer of a batch file containing the Reconciliation and Settlement data for a single business day.

A file header is written at the start, followed by a detail record for every transaction that has been acquired by the NBX on behalf of the Financial Institution including failed (declined) transactions for the business day. A transaction sub-total record occurs approximately every forty transactions.

A file summary is written at the end of the file, following the last sub-total record. This is comprised of a sequence of summary line records. A summary trailer detailing the net position of the institution follows the summary line records.

The file is terminated with a trailer containing a count of all records in the file with the exception of the header and trailer records.

The file is sorted by reconciliation time, RECON-TIME, sequence, then by the reconciliation trace number, RECON-TRACE-NUMBER. This is to ensure that when more than 1 transaction has the same time they are sequenced by the trace number. See File Attributes in section 5.2.1

5.2 File Structure

5.2.1 File Attributes

File Organisation: Sequential	Storage Medium: Electronic
Key: None	Sort Sequence: Detail records are written in RECON-TIME/RECON-TRACE-NUMBER order.
Record Length: 132 Bytes	Retention Period: 10 Days
Format of File: ASCII	



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

5.1.2 Record Summary

The file will contain records as listed in the table below; these records will be formatted as described in section 4.2.

RECORD NAME	RECORD LENGTH	OCCURRENCE		
		MIN	MAX	AVE
Header	132	1	1	1
Transaction Details	132	0	See Appendix D – Volumetrics, Section 11	Appendix D – Volumetrics, Section 11
Transaction Sub-Total	132	1	See Appendix D – Volumetrics, Section 11	Appendix D – Volumetrics, Section 11
Summary Detail	132	1	1	1
Summary Trailer	132	1	1	1
File Trailer	132	1	1	1

Files will be generated for CAPO and A&L every day even if there are no transactions (weekends and bank holidays included).



**FI Reconciliation and
Settlement File Format AIS**

Project: *EMV – Banking and Retail*

Doc Ref: *NB/IFS/030*

COMMERCIAL IN CONFIDENCE

6 Security of Transmitted Data

6.1 Overview

This section details security aspects of this interface. CONNECT:Direct keeps a record that the file has been sent and received by the FI. The Fujitsu Connect Direct platform will also maintain audit logs of outgoing reconciliation files. See the TIS specific to the Interface i.e. NBX - A&L TIS [Ref. 6] and NBX - CAPO TIS [Ref. 3].



**FI Reconciliation and
Settlement File Format AIS**

Project: *EMV – Banking and Retail*

Doc Ref: *NB/IFS/030*

COMMERCIAL IN CONFIDENCE

7 Operational Procedures

7.1 Overview

The operational procedures are covered in the following documents: Operating Level Agreement for Network Banking between Fujitsu Services and CAPO (EDS) [Ref 9] and Operating Level Agreement for Network Banking between Fujitsu Services and Alliance & Leicester [Ref 10]

7.2 Processing Cycles

This file will be produced as part of the End of Day Processing for Reconciliation and Settlement and will be transmitted to the Financial Institution at the latest by the time specified by the Service Level Agreement for this activity. There will be at least one file created each and every calendar day i.e. 7 days a week 52 weeks a year. If there are no occurrences of the detail data records defined in this document on any given day, a file will still be created and transferred to the Financial Institution.

7.3 Transfer Initiation and Protocol

The file will be transferred as described in the TIS relevant to the particular Financial Institution:

NBX - CAPO TIS [Ref. 3]

NBX - A&L TIS [Ref.6]



FI Reconciliation and Settlement File Format AIS

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

8 Appendix A: A&L Mapping

This Appendix contains the mapping of the A&L Message fields to the Reconciliation File detail record. Post Office readers may also view this mapping in the NBX Mapping documents [Ref. 5] and [Ref.8]. Note: The mapping to the REC file is from the FI's perspective. This is different from how the fields are actually populated in the NBX.

REC Field	Size	Source field sent to / received from A&L	Bitmap Ref	Notes
RECON-TIME	6	Transaction Time from the R1 message	P-12	Time of the Transaction from the R1 message. FIN-TIME-LOCAL in settlement record
RECON-TRACE-NUMBER	6	System Trace Audit Number	P-11	Generated by the NBX - STAN from request message to issuer (R3).
CARDHOLDER-ISO-PREFIX, CARDHOLDER-NUMBER	6, 13	Track 2 Data	P-35	PAN is not passed separately to A&L (Positions 1-18 of Track 2 Data hold the PAN). Positions 0-5 of PAN=CARDHOLDER-ISO-PREFIX, Positions 6-18 of PAN=CARDHOLDER-NUMBER
RECON-TXN-TYPE	3	Processing Code	P-3	Processing Code is translated to NBX Internal Message Identifier. RECON-TXN-TYPE derived from this Internal Message Identifier, and will be 'WDL', 'REV', 'DEP' or 'DRV'
RECON-AMT-ACQUIRED	10	N/a	N/a	Not populated
RECON-AMT-ISSUED	10	Transaction Amount	P-4	For approved transactions RECON-AMT-ISSUED will be populated with the transaction amount (Withdrawal "WDL" will be shown as positive, Withdrawal Reversal "REV" as negative, Deposit "DEP" as negative and Deposit Reversal "DPR" as positive). This field will not be populated if the transaction has been failed or declined.
RECON-AMT-FAILED	10	Transaction Amount	P-4	For approved transactions RECON-AMT-FAILED will not be populated. For declined or failed transactions RECON-AMT-FAILED will be populated with the transaction amount.
RECON-RESP-CODE	2	Response Code or Reversal Reason Code	P-39	See the NBX - A&L AIS [Ref. 7] for Response Codes and Reversal Reason Codes relevant to A&L.
RECON-ACQ-ID	6	Acquiring Institution Identification Code	P-32	Positions 2-7 of Acquiring Institution Identification Code (200040 for PO) which is set by the NBX from Reference Data
RECON-TERM-ID	11	Card Acceptor Terminal Identification	P-41	Card Acceptor Terminal Identification field (which includes Group ID (FAD) & Node ID) is used to populate this field
RECON-FWD-ID	6	N/a	N/a	Not populated
RECON-TERM-SEQUENCE- NO	6	Retrieval Reference Number	P-37	Positions 7-12 of Retrieval Reference Number, which contains the STAN and is populated by the NBX. The STAN is also provided in RECON-TRACE-NUMBER.
RECON-CUM-TOTAL	13	N/a	N/a	Cumulative value of transactions, calculated within NBX Reconciliation. Excludes failed (including declined) transactions



**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

9 Appendix B: CAPO Mapping

This Appendix contains the mapping of the CAPO Message fields to the Reconciliation File detail record. Post Office readers may also view this mapping in the NBX Mapping Document [Ref. 5] and [Ref. 8]. Note: The mapping to the REC file is from the FI's perspective. This is different from how the fields are actually populated in the NBX.

Note: The mapping to the REC file is from the FI's perspective.

REC Field	Size	Source field sent to / received from CAPO	Bitmap Ref	Notes
RECON-TIME	6	Transaction Time – from the R1 message	012	Time of the Transaction from the R1 message. FIN-TIME-LOCAL in settlement record
RECON-TRACE-NUMBER	6	System Trace Audit Number	011	Generated by the NBX – STAN from request message to issuer (R3).
CARDHOLDER-ISO-PREFIX, CARDHOLDER-NUMBER	6, 13	Primary Account Number (PAN)	002	Positions 0-5 of PAN=CARDHOLDER-ISO-PREFIX, Positions 6-18 of PAN=CARDHOLDER-NUMBER
RECON-TXN-TYPE	3	Processing Code	003	Processing Code is translated to NBX Internal Message Identifier. RECON-TXN-TYPE derived from this Internal Message Identifier, and will be 'WDL', 'REV', 'DEP' or 'DRV'
RECON-AMT-ACQUIRED	10	N/a	N/a	Not populated
RECON-AMT-ISSUED	10	Transaction Amount	004	For approved transactions RECON-AMT-ISSUED will be populated with the transaction amount (Withdrawal "WDL" will be shown as positive, Withdrawal Reversal "REV" as negative negative, Deposit "DEP" as negative and Deposit Reversal "DPR" as positive). This field will not be populated if the transaction has been failed or declined.
RECON-AMT-FAILED	10	Transaction Amount	004	For approved transactions RECON-AMT-FAILED will not be populated. For declined or failed transactions RECON-AMT-FAILED will be populated with the transaction amount.
RECON-RESP-CODE	2	Response Code or Reversal Reason Code	039	See CAPO AIS [Ref. 4] for the Response and Reversal Reason Codes relevant to CAPO.
RECON-ACQ-ID	6	Acquiring Institution Identification Code	032	Positions 2-7 of Acquiring Institution Identification Code (200040 for PO) which is set by the NBX from Reference Data
RECON-TERM-ID	11	Card Acceptor Terminal Identification	041	Card Acceptor Terminal Identification field (which includes Group ID (FAD) & Node ID) is used to populate this field
RECON-FWD-ID	6	N/a	N/a	Not populated
RECON-TERM-SEQUENCE- NO	6	Retrieval Reference Number	037	Positions 7-12 of Retrieval Reference Number, which contains the STAN and is populated by the NBX. The STAN is also provided in RECON-TRACE-NUMBER.
RECON-CUM-TOTAL	13	N/a	N/a	Cumulative value of transactions, calculated within NBX Reconciliation. Excludes failed (including declined) transactions


**FI Reconciliation and
Settlement File Format AIS**

Project: EMV – Banking and Retail

Doc Ref: NB/IFS/030

COMMERCIAL IN CONFIDENCE

10 Appendix C – End of Day Events

Description	Time	How triggered/Dependency	Impact
Online System			
NBX System Business Day	20:00	Update Settlement Date DD/MM/YYYY increment by 1	
A&L EOD	20:00	Timed Event	Message sent to A&L to indicate new Settlement Date and that after this all request messages issued by the NBX will have the new Settlement Date. Notification of the messages are saved to indicate EOD to the reconciliation.
CA EOD	20:00	Timed Event	Message sent to CAPO to indicate new Settlement Date and that after all request messages issued by the NBX will have the new Settlement Date. Notification of the messages are saved to indicate EOD to the reconciliation.
Reconciliation Check for A&L Messages Sent	20:30	Timed event – looks for existence of the messages for A&L	Prepares the A&L REC file for the Settlement Date that has just ended. The process does not look at any transactions with the new Settlement Date.
Reconciliation Check for CAPO Messages Sent	20:30	Timed event – looks for existence of the messages for CAPO	Prepares the CAPO REC file for the Settlement Date that has just ended. The process does not look at any transactions with the new Settlement Date.
Connect Direct job for A&L	After above	After successful completion of above	Picks the file up from set directory and sends it as per A&L TIS [Ref.6] Returns acknowledgement file to directory
Connect Direct job for CAPO	After above	After successful completion of above	Picks the file up from set directory and sends it as per CAPO TIS [Ref.3] Returns acknowledgement file to directory
Reconciliation Selection Criteria			
Authorisations or Declines			Selects all financial transactions with a Settlement Date equal to the Settlement Date being reconciled plus any suspended financial transactions that can now be reconciled.
Reversals			Selects reversals processed by the NBX for the Settlement Date equal to the Settlement Date being reconciled, plus any that may arrive in the extended window from 20.00 to 20.10. Also any late reversals where the original transaction was included in an earlier reconciliation file going back up to 5 days (parameterised)



11 Appendix D – Volumetrics

11.1 Settlement & Reconciliation Files

The Settlement & Reconciliation file structures are summarised in Table 7: Settlement & Reconciliation Files and Sizes. The sizings are based on the values for the fields within records, headers and footers. The aggregate file sizes for each interface are detailed in Table 8: REC File Sizes.

The REC file uses the human readable report format and the file is uncompressed. The structure around the body records comprises several entities and the average number of this is shown in the comment column.

File	Direction of flow	Body Record Size (Bytes)	Header, Footer, Size (Bytes)	Comment
REC	NBX -> CAPO	132	Header = 132 Tx Sub-total = 132 Summary Detail = 132 Summary Trailer = 132 File Trailer = 132	Frequency 1 per file 1 per 40 records 20 per file 1 per file 1 per file
REC	NBX -> Alliance & Leicester	132	Header = 132 Tx Sub-total = 132 Summary Detail = 132 Summary Trailer = 132 File Trailer = 132	Frequency 1 per file 1 per 40 records 20 per file 1 per file 1 per file

Table 7: Settlement & Reconciliation Files and Sizes

Tx/day	NBX -> CAPO % Tx / Day 90% REC (Bytes)	A&L -> CAPO % Tx / Day 5% REC (Bytes)
33,333	4,061,995	228,534
333,330	40,592,630	2,258,013
666,660	81,182,224	4,512,991
999,990	121,771,818	6,767,968
1,333,320	162,361,412	9,022,946
1,666,650	202,951,007	11,277,923

Table 8: REC File Sizes

End of Document