

## Bankline Exchange

# Data Services File Specification Faster Payments – ISO8583 format

Data Services is a specialist range of information services available via Bankline Exchange.

This specification relates to inward Faster payments information for Agency sort codes. The specification is for provision of data in a permutation of the ISO8583 format. The full ISO8583 format consists of 128 data fields per transaction record but the Faster Payments scheme does not utilise all of these fields. This specification provides details of Faster Payments relevant fields 'only' in Section 3 – Transaction record.

### File naming convention

File creation date, in the format:

- ddmmynn.dat (unencrypted files)
- ddmmynn.dat.ent (encrypted files)

### Data format

- ASCII (for all Data Services files)
- EBCDIC (by special arrangement)

### Test files

Test files are available containing sample data. All test files will contain both header and trailer information and will replicate the specification of live transmission files.

### Archived files

Data Services files can be downloaded from NatWest for ten calendar days from the original date of transmission. After this time data will be deleted and duplicates cannot be provided.

# Section 1 – File structure

The file layout for single account and multiple account files is provided below.

## 1.1 Single account

- File header (fixed length)
- Transaction records (variable length)
- File trailer (fixed length)

Not all fields in the file are used. Therefore, each transaction record contains a bit map identifying the presence or absence of a field in the record. Options are detailed below:

- Mandatory (M) – Field will always be populated
- Optional (O) – Field may be populated by the payment sender
- Conditional (C) – Fields have to be populated under certain circumstances by the payment sender

Variable fields are preceded by fixed length “field tags”, stating the length of the following variable length field.

Each account record is terminated with a EBCDIC vertical bar (otherwise known as a pipe) symbol (decimal 124, hexadecimal 7C).

Certain fields may contain carriage return line feeds (CrLf), for example within address fields. These fields will be present on the records in the format they were received, including any of these special characters.

## 1.2 Multiple accounts

- File header (fixed length)
- Transaction records for first sort code (variable length)
- Transaction records for second sort code (variable length) and so on
- File trailer (fixed length)

## 1.3 Field justification

- Fixed length numeric fields are right justified with leading zeros
- Fixed length alphanumeric fields are left justified with trailing spaces
- Variable length fields (alphanumeric and numeric) are left justified

## 1.4 Supported characters

- A to Z (uppercase)
- a to z (lowercase)
- 0 to 9
- / (forward slash), – (minus sign), ? (question mark), : (colon), ( (left parenthesis), ) (right parenthesis), . (point), , (comma), ' (right single quote), + (plus sign), SPACE, # (hash), = (equals), ! (exclamation mark), " (right double quote), % (percentage), & (ampersand), \* (asterisk), < (less than), > (greater than), ; (semi colon), { (left curly bracket), @ (commercial at), CrLf (carriage return line feed)

# Section 2 – File header and trailer labels

## 2.1 File header

Field Number	Field Name	Presence	Field Size	Field Contents
0	Header	Mandatory	16	Value = 0000000000000000
1	Processing date	Mandatory	8	YYYYMMDD. Date the file was created
	Record delimiter	Mandatory	1	Vertical bar or pipe character (decimal 124, hex 7C)

## 2.2 File trailer

Field Number	Field Name	Presence	Field Size	Field Contents
0	Trailer	Mandatory	16	Value = <u>ZZZZZZZZZZZZZZZZ</u>
1	Debit Total	Mandatory	14	Numeric. Total value of debit items, in pence, unsigned
2	Credit Total	Mandatory	14	Numeric. Total value of credit items, in pence, unsigned
3	Debit Count	Mandatory	7	Numeric. Total number of debit items
4	Credit Count	Mandatory	7	Numeric. Total number of credit items
	Record delimiter	Mandatory	1	Vertical bar or pipe character (decimal 124, hex 7C)

## Section 3 – Transaction record

Field Number	Presence	Field Name	Field Size	Format	Comments
0	M	Bit map primary	16	Hexadecimal representation of binary data	The primary bit map is used to indicate the presence/ absence of data fields for each record. It consists of 16 hexadecimal characters (or 64 bits) which represent data fields 1 to 64 (See Appendix 1)
1	M	Bit map secondary	16	Hexadecimal representation of binary data	The secondary bit map is an extension of the above and indicates the presence/absence of data fields 65 to 128 (See Appendix 1)
3	M	Processing code	6	Numeric	The first two digits indicate the type of Faster Payments as follows: 10nnnn = Single Immediate Payment 20nnnn = Return Payment 25nnnn = Scheme Return Payment 30nnnn = Standing Order 40nnnn = Forward Dated Single Payment 50nnnn = Corporate Bulk Payment
4	C	Original amount	14	Numeric	Value of the payment in its original currency (Currency code in field 49). Only present where the currency of the original payment differs from that used by the sending FP institution
6	M	Amount	14	Numeric	Amount of payment in £ sterling (in pence)
10	C	Exchange rate	12	Numeric abbbbbbbbbbb where a is the position of the decimal point from the right of the amount field and b is the conversion factor	Currency conversion rate, determined by originating institution, used to convert original amount (field 4), expressed in original currency (field 49) to amount (field 6). Only present where the currency of the original payment differs from that used by the sending FP institution
12	M	Date sent	8	Numeric, date in format YYYYMMDD	Business date on which the payment was sent
15	M	Settlement date	8	Numeric, YYYYMMDD	Identifies the date on which the payment will settle. Normally same day as sent but next business day for any payments received after 18:30

Field Number	Presence	Field Name	Field Size	Format	Comments
26	M	Action code	4	Numeric	Defines the disposition of a message: 0nnn – Accepted 4nnn – Reversal Debit
27	C	Processed asynchronously	1	Numeric	For internal bank use
29	M	Settlement cycle ID	3	Numeric	For bank use. Indicates which of the 4 daily inter-bank settlement periods the payment was included within
		Field Length Tag	2	Numeric	Indicates length of field 31 (0 to 18)
31	M	Transaction reference number	18 (var)	Alphanumeric and special characters	Unique reference number of each payment (applied by sending institution)
		Field Length Tag	2	Numeric	Indicates length of field 32 (01 to 08)
32	M	Submitting member	8 (var)	Numeric	Derived by the central FP system. Scheme code for the submitting member
		Field Length Tag	2	Numeric	Indicates length of field 35 (01 to 34)
35	M	Beneficiary customer account number	34 (var)	Alphanumeric and special characters	Beneficiary customer's account number or IBAN
42	M	Originating credit institution	11	Alphanumeric and special characters	Sort code or BIC of originating credit institution
		Field Length Tag	2	Numeric	Indicates length of field 43 (01 to 34)
43	M	Originating customer account number	34 (var)	Alphanumeric and special characters	Originating customer's account number or IBAN
		Field Length Tag	3	Numeric	Indicates length of field 46 (001 to 204)
46	C	Charging information	204 (var)	Alphanumeric and special characters	Charging information for the transaction. More likely to be present on payments originating overseas (see Appendix 2)

Field Number	Presence	Field Name	Field Size	Format	Comments
49	C	Original currency	3	Numeric	Code of the currency in which the payment originated. Only present where the currency of the original payment differs from that used by the sending FP institution (based on ISO4217 standard numeric currency codes)
51	M	Currency	3	Numeric	Code of the currency of the payment (always 826 = £ sterling)
		Field Length Tag	3	Numeric	Indicates length of field 61 (001 to 030)
61	O	Payment data	30 (var)	Alphanumeric and special characters	This field is used to indicate specific conditions that are, or were, present at the time of the payment and what type of environment it initiated in for bank use
		Field Length Tag	3	Numeric	Indicates length of field 62 (001 to 031)
62	O	End to end Reference	31 (var)	Alphanumeric	Optional additional reference or message from sender to beneficiary
71	O	Numeric Reference	4	Numeric	Standing order mandate reference (relating to the senders S/O reference with their bankers)
		Field Length Tag	3	Numeric	Indicates length of field 72 (001 to 032)
72	C	File ID	32 (var)	Alphanumeric and special characters	Only present when the payment is submitted as part of a file or bulk set of payments
		Field Length Tag	2	Numeric	Indicates length of field 95 (01 to 11)
95	M	Beneficiary credit institution	11 (var)	Alphanumeric and special characters	Sort code or BIC of credit institution holding account of beneficiary
98	M	Sending FPS Institution	11	Alphanumeric and special characters	Valid sort code or BIC of sender (will contain a BIC if payment originated overseas)

Field Number	Presence	Field Name	Field Size	Format	Comments
		Field Length Tag	2	Numeric	Indicates length of field 99 (01 to 08)
99	M	Receiving Member	8 (var)	Alphanumeric	Derived by the central FP system. Scheme code for the receiving member
		Field Length Tag	2	Numeric	Indicates length of field 116 (01 to 40)
116	O/M	Originating customer account name	40 (var)	Alphanumeric and special characters	Originating customer account name N.B. Mandatory for payments originating overseas under FATF regulations
		Field Length Tag	3	Numeric	Indicates length of field 117 (001 to 140)
117	O/M	Originating customers account address	140 (var)	Alphanumeric and special characters	Originating customer's account address N.B. Mandatory for payments originating overseas under FATF regulations
		Field Length Tag	3	Numeric	Indicates length of field 118 (001 to 040)
118	O	Beneficiary customer account name	40 (var)	Alphanumeric and special characters	Name of beneficiary's account
		Field Length Tag	3	Numeric	Indicates length of field 119 (001 to 140)
119	O	Beneficiary customer account address	140 (var)	Alphanumeric and special characters	Beneficiary's account address
		Field Length Tag	3	Numeric	Indicates length of field 120 (001 to 018)
120	O	Reference information	18 (var)	Alphanumeric and special characters	Payment reference information. In most cases this will be the client reference or account number that allows the beneficiary to identify the sender or purpose of the payment

Field Number	Presence	Field Name	Field Size	Format	Comments
		Field Length Tag	3	Numeric	Indicates length of field 121 (001 to 140)
121	O	Remittance information	140 (var)	Alphanumeric and special characters	Additional remittance information, over and above Ref Info (Field 120)
		Field Length Tag	3	Numeric	Indicates length of field 122 (001 to 105)
122	O	Regulatory reporting	105 (var)	Alphanumeric and special characters	Not generally used for Faster Payments. May be populated by the sending member for some overseas payments
		Field Length Tag	3	Numeric	Indicates length of field 126 (001 to 008)
126	O	Payment return code	8 (var)	Alphanumeric and special characters	Code identifying reason for returning the payment. These transactions will only occur for customers with the ability to send Faster Payments outwards from their Agency sort code (see Appendix 3)
		Field Length Tag	3	Numeric	Indicates length of field 127 (001 to 042)
127	O	Returned payment FPID	42 (var)	Alphanumeric and special characters	Faster Payments reference used for returned Faster Payments. Allows recipient to match against original transaction reference. As above, only applicable for customers with outward payment capability via their Agency sort code
128	M	Message authentication code	16	Alphanumeric	Code used by central system Hex representation of binary data
		Record delimiter	1		Vertical bar or pipe character (decimal 124, hex 7C)



# Appendix 1 – Primary & Secondary Bit Maps

The bit map contains hexadecimal characters 0 – 9 plus A – F which, when converted into binary, provide an indicator (using 1 and 0) of the presence of data fields in the transaction record. Each hex character provides the bit map for 4 data fields once converted.

For example if the primary bit map for a record was:

**A412002B20602000**

then the first hex character 'A' converts to '1010' in binary.

This would indicate that fields 1 and 3 are present and fields 2 and 4 are not.

So 'A' = fields 1 – 4, '4' = fields 5 – 8 etc up to 64.

Exactly the same principals apply to the secondary bit map for fields 65 – 128.

Below is a conversion table for your reference.

Hexadecimal Character	Bit Map Representation
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

## Appendix 2 – Field 46: Charging information

Subfield 1 indicates which party will bear the charges for the transaction

Subfield Digits	Subfield Type	Content	Meaning
1 – 3	Subfield tag	001	Identifies start of subfield
4 – 6	Subfield tag length	001 – 003	Identifies length of subfield value
7 – 9	Subfield value	BEN	All transaction charges are to be borne by the beneficiary
		OUR	All transaction charges are to be borne by the originating customer
		SHA	Transaction charges on the sender's side are to be borne by the originating customer, transaction charges on the receiver's side are to be borne by the beneficiary

Subfield 2 is a repetitive subfield that specifies the currency and amount of the transaction charges deducted by the sender and previous banks in the payment chain.

Subfield Digits	Subfield Type	Content	Meaning
10 – 12	Subfield tag	002	Identifies start of subfield
13 – 15	Subfield tag length	001 – 003	Identifies length of subfield value
16 – 33 (repeatable per charge in the chain)	Subfield value	<ul style="list-style-type: none"> <li>■ Left aligned: 3 digit currency code</li> <li>■ Right aligned: amount in pence or lowest denomination of currency</li> </ul>	For example, £24.50 is 826000000000002450

Subfield 3 specifies the currency and amount of the transaction charges due to the receiver.

Subfield Digits	Subfield Type	Content	Meaning
34 – 36*	Subfield tag	003	Identifies start of subfield
37 – 39*	Subfield tag length	001 – 003	Identifies length of subfield value
40 – 56*	Subfield value	<ul style="list-style-type: none"> <li>■ Left aligned: 3 digit currency code</li> <li>■ Right aligned: amount in pence, unsigned</li> <li>■ Centre: zero filled</li> </ul>	For example, £24.50 is 826000000000002450

\*The start positions (within Field 046) of Subfield 3 may be increased (in blocks of 18) if multiple charges are present in Subfield 2.

## Appendix 3 – Field 126 – Return Codes

As the name suggests, Returns are the return of a previously sent outward Faster Payments. They can only be received into an account that was used to make the original payment.

Member Returns occur when the beneficiary member is unable to apply a payment. The payment will be returned with one of the following codes in field 126.

Value	Meaning
00000001	Beneficiary Sort Code/Account Number unknown
00000002	Beneficiary Account closed
00000003	Beneficiary Account stopped
00000004	Beneficiary deceased
00000005	Account cannot be identified without data in Reference Information Field
00000006	Beneficiary Account Name does not match Beneficiary Account Number
00000007	Return requested by sender of original payment
00000008	Account is not in currency quoted
00000009	Beneficiary not expecting funds/instructed return
00000010	Terms and Conditions of Account do not permit crediting of these funds
00000011	Fraudulent payment suspected
00000012	Account transferred
00000013	Reason not specified because of sensitivities
00000014	Other

Scheme Returns occur when circumstances do not allow a payment to be sent/received under the Faster Payments scheme or Member Bank rules. One of the codes below will be present in field 126 to provide a reason.

Value	Meaning
1100	Other than that identified below
1114	Beneficiary Sort Code/Account Number unknown
1160	Beneficiary Account closed
1161	Beneficiary Account stopped
1162	Beneficiary Account name does not match beneficiary Account Number
1163	Account cannot be identified without data in reference information field
1164	Reference information is incorrect
1165	Account is not in currency quoted
1166	Account transferred
1167	Beneficiary deceased
1168	Fraudulent payment suspected
1169	Reason not specified because of sensitivities
1170	Terms and Conditions of Account do not permit crediting of these funds
1171	Beneficiary Account name not present
1172	Funds not available
1173	Sending Agency Sort Code/Account Number unknown
1174	Sending Agency Account closed
1175	Sending Agency Account stopped
1176	Receiving Agency Sort Code/Account Number unknown
1177	Receiving Agency Account closed
1178	Receiving Agency Account stopped
1179	Sending Agency Account transferred
1180	Receiving Agency/responding Third Party Beneficiary Account transferred
1181	Duplicate Faster Payments ID
1909	System malfunction: must only be used if direct receiver can receive the payment but because of system failure cannot send a qualified response and process it later
1182 – 1199	Unallocated – available for later use

## Further information

For more information and to arrange a test transmission, contact:

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