

**BIC EDI Standards
and
Implementation Guidelines**

The Book Trade

TRADACOMS

Transmission Structure

October 2007

TRANSMISSION STRUCTURE

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1 Introduction

The purpose of this document is to provide details of the STX and END segments and the RSGRSG message, and notes on various general aspects of TRADACOMS content.

2 TRADACOMS transmission

In the general case, a TRADACOMS transmission consists of:

- A Start of Transmission Segment (STX)
- One or more Files
- A Reconciliation Message (RSGRSG)
- An End of Transmission Segment (END)

3 File structure

3.1 Message structure

A TRADACOMS File consists of a series of Messages. Each Message has a similar overall structure, beginning with a Message Header Segment (MHD) and ending with a Message Trailer Segment (MTR). The contents, however, are different for each transaction type or File Format (eg Orders, Invoices), and these are specified in the individual format specifications.

Normal practice should be to send one file per STX envelope. However, in library implementations, when several libraries trade through a shared EDI gateway, it is more efficient to send multiple files of the same type in a single STX envelope. This practice should be agreed between trading partners.

3.2 Segment structure

Each segment consists of:

- Segment label (eg: STX)
- Separator (=)
- 1 or more Data elements
 - Data (coded or free-text as permitted by rules)
 - Separator (:)
 - Data
 - Data Element terminator (+)
- Segment terminator ('')

eg: STX=ANAA:1+5012345678987:LIB+5098765432123:SUPP+01906+246359++BTOERS2''

4 Documentation Conventions

Within the guidelines these are set out as format tables – detailing permitted segments and data for each File format. Each format table contains the following columns:

- Column 1: contains the ‘separator’ (‘=’, ‘+’ or ‘:’ – see 5.1) that precedes the element described in the current line
- Column 2: contains the Segment code (eg: ‘OLD’) or Data Element code (eg: ‘MSRF’). Note that Segment codes are carried as part of the message, while Data Element codes are not – they are for reference only.
- Column 3: contains the Segment name (eg: ‘Message Header’) or Data Element/Sub-element name (eg: ‘Type of Message’)
- Column 4: shows whether the segment/element/sub-element is required (mandatory) or used under specified conditions (conditional) and contains either ‘M’ (Mandatory) or ‘C’ (Conditional)
- Column 5: shows whether the data in the segment/element/sub-element is of fixed or variable length and contains either ‘F’ (Fixed length) or ‘V’ (Variable length)
- Column 6: contains information on the number and type of characters allowed in the data:
 eg: 9(10) – Numeric (10 digits)
 X(30) – Alphanumeric (30 characters)
 9(10) V 9(4) – Total 14 digits consisting of:
 Numeric (10 digits)
 Variable numeric (4 decimal places)
- Column 7: contains an explanation of the use of the segment or data element

Example:

| | STX | START OF TRANSMISSION | M | | | |
|---|-------------|---------------------------------------|----------|---|-------|--|
| | <i>STDS</i> | Syntax Rules Identifier | M | | | |
| = | | Identifier | M | V | X(4) | Always ‘ANAA’ (the reconciliation message must be present according to BIC requirements) |
| : | | Version | M | F | 9(1) | Always ‘1’ |
| | <i>FROM</i> | Identification of transmission sender | M | | | One mandatory occurrence per STX segment, to give the identity of the sender, preferably as an EAN location number (GLN). Either a GLN or the sender name (or both) must be sent |
| + | | Code | C | V | X(14) | EAN location number (GLN) identifying the receiver of the transmission |
| : | | Name | C | V | X(35) | Name of the sender of the transmission. Mandatory if no GLN is sent |

STX=ANAA:1+5012345678901:SENDERNAME.....

5 TRADACOMS character set

The character set permitted by the TRADACOMS standard is the basic ASCII set defined in the table below:

| Character | Hex |
|-----------|-----|
| A | 41 |
| B | 42 |
| C | 43 |
| D | 44 |
| E | 45 |
| F | 46 |
| G | 47 |
| H | 48 |
| I | 49 |
| J | 4A |
| K | 4B |
| L | 4C |
| M | 4D |
| N | 4E |
| O | 4F |
| P | 50 |
| Q | 51 |
| R | 52 |

| Character | Hex |
|-----------|-----|
| S | 53 |
| T | 54 |
| U | 55 |
| V | 56 |
| W | 57 |
| X | 58 |
| Y | 59 |
| Z | 5A |
| 0 | 30 |
| 1 | 31 |
| 2 | 32 |
| 3 | 33 |
| 4 | 34 |
| 5 | 35 |
| 6 | 36 |
| 7 | 37 |
| 8 | 38 |
| 9 | 39 |

| Character | Hex |
|-----------------|-----|
| Blank space | 20 |
| Ampersand & | 26 |
| Asterisk * | 2A |
| Open bracket (| 28 |
| Close bracket) | 29 |
| Comma , | 2C |
| Hyphen - | 2D |
| Full stop . | 2E |
| Solidus / | 2F |
| Percent % | 25 |
| Question mark ? | 3F |
| Apostrophe ' | 27 |
| Plus sign + | 2B |
| Colon : | 3A |
| Equals = | 3D |
| Padding char ^ | 5E |

In practice, lower case letters are also customarily sent in text fields in BIC TRADACOMS messages, but there is no guarantee that any other characters can be successfully transmitted to or interpreted by the receiver of a message.

5.1 Characters with special meaning

The following five characters have special significance in a TRADACOMS transmission:

- = The Equals sign is used to separate a segment label from the first data element in the segment.
- + The Plus sign is used to separate successive data elements within a segment.
- :
- : The Colon is used in composite data elements to separate successive component sub-elements.
- ' The Apostrophe is used to terminate a segment.
- ? The Question Mark is used as a “release character”. When any of these five characters with special meaning is required as part of the text content of a data element, it must be preceded by the release character in order to ensure that it is not misinterpreted. For example, O'REILL Y must be sent as O?'REILL Y. Note that the release character is not counted as part of the length of the data element.

6 Numeric data elements

All numeric data elements in TRADACOMS are defined either as integers or as having a fixed number of decimal places. Consequently the decimal point is not sent explicitly, but is implied by reference to the data element definition.

A negative value may be sent by placing a minus sign before the number, eg *-1250*. Leading zeros should not be sent; but trailing zeros in a decimal value must be included, eg £12.50 in a data element which is defined as having four decimal places must be sent as *125000*.

7 Text data elements

All variable-length text data elements in TRADACOMS should be terminated by the appropriate data element or segment separator (see 5.1), without trailing spaces or any other “padding” character.

8 Omitted segments and data elements

Where no data exists for a segment which is not mandatory, the segment must not be transmitted.

Within a segment, empty data elements which precede an element which has data must be indicated by sending the required number of separators, eg *SEG=+++DATA'*.

Any empty data elements which follow the last element in the segment which has data should preferably be omitted, together with the associated separators, but it is also valid to send the full set of separators, eg *SEG=DATA'* and *SEG=DATA+++'* are both valid, but the first is recommended.

The same conventions apply to sub-elements within a composite element, ie *+:::DATA+* where there are three empty sub-elements preceding a sub-element which has data, and *+DATA+* where there are empty sub-elements following the last sub-element which has data.

9 Start of Transmission segment (STX)

The table on the next page shows the layout of the Start of Transmission segment (STX). The following is an example of an STX segment laid out in accordance with BIC recommendations:

*STX=ANAA:1+1234567890123:ANYBOOKS DONCASTER+1245678901234:XYZ
PUBLISHERS+010109+ANYB00056789++ORDHDR'*

The value *ANAA* in the Syntax Rules Identifier STDS shows that the Reconciliation feature is being used, in accordance with BIC practice.

The Recipient's Transmission Reference RCRF is not used.

In accordance with a widely-adopted practice, the Application Reference APRF shows the TRADACOMS "name" of the header for the transaction type which is carried in the transmission.

The Transmission Priority Code is not used.

PLEASE NOTE: the final column in the table in this version of the format contains an amalgamation of BIC ‘comments’ and TRADACOMS ‘remarks’.

The expected content of the Start of Transmission segment is as follows:

| | STX | START OF TRANSMISSION | M | | | |
|---|------|---|---|---|-------|--|
| | | | | | | |
| | STDS | Syntax Rules identifier | M | | | |
| = | | Identifier | M | V | X(4) | Always ‘ANAA’ (the reconciliation message must be present according to BIC requirements) |
| : | | Version | M | F | 9(1) | Always ‘1’ |
| | FROM | Identification of transmission sender | M | | | One mandatory occurrence per STX segment, to give the identity of the sender, preferably as an EAN location number (GLN). Either a GLN or the sender name (or both) must be sent |
| + | | Code | C | V | X(14) | EAN location number (GLN) identifying the sender of the transmission |
| : | | Name | C | V | X(35) | Name of the sender of the transmission. Mandatory if no GLN is sent |
| | UNTO | Identification of transmission receiver | M | | | One mandatory occurrence per STX segment, to give the identity of the receiver, as an EAN location number (GLN). A receiver name may also be sent |
| + | | Code | M | V | X(14) | EAN location number (GLN) identifying the receiver of the transmission |
| : | | Name | C | V | X(35) | Name of the receiver of the transmission. |
| | TRDT | Transmission date | M | | | One mandatory occurrence per STX segment, to give the date of transmission. Note: the ‘time’ sub-element is not required in book trade applications |
| + | | Date | M | F | 9(6) | Format: YYMMDD |
| : | | Time | C | F | 9(6) | Format: HHMMSS (not required in book trade applications) |
| + | SNRF | Sender's transmission reference | M | V | X(14) | Mandatory. Reference identifying the transmission |
| + | RCRF | Receiver's transmission reference | C | V | X(14) | If known to sender |
| + | APRF | Application reference | C | V | X(14) | Used by networks to validate the transmission: does this sender have authority to send this type of transmission to this receiver? |
| + | PRCD | Transmission priority code | C | F | X(1) | Not used in BIC practice. |

10 Reconciliation Message (RSGRSG)

The table on page 9 shows the layout of the Reconciliation Message (RSGRSG). Some networks may require this feature to be used for integrity checking, and BIC practice requires its use in all circumstances. When used, the RSGRSG message must always be sent at the end of the transmission immediately before the END segment.

The following is an example of an RSGRSG message as it might appear at the end of the transmission introduced by the STX segment in section 9:

*MHD=25+RSGRSG:2'
RSG=ANYB00056789+1245678901234'
MTR=3'*

In this example it has been assumed that there were 24 messages in the transmission up to and excluding the RSGRSG message. By checking the content of the RSG segment against the STX segment, an important aspect of the integrity of the transmission is verified.

11 End of Transmission segment (END)

The table on page 10 shows the layout of the End of Transmission segment (END).

The following is an example of an END segment as it might appear at the end of the transmission introduced by the STX segment in section 9:

END=25'

Reconciliation message: RSGRSG Version 2

The expected content of the Reconciliation message is as follows::

| | MHD | MESSAGE HEADER | | | M | | | One mandatory occurrence per reconciliation message |
|---|------------|-----------------------|---|---|----------|---|---------|--|
| = | MSRF | Message reference | M | V | 9(12) | Consecutive count of messages within the transmission | | |
| | TYPE | Type of message | M | | | | | |
| + | | Type | M | F | X(6) | Always 'RSGRSG' | | |
| : | | Version number | M | F | 9(1) | Always '2' for this version | | |

| | RSG | RECONCILIATION SEGMENT | | | M | | | One mandatory occurrence per reconciliation message |
|---|------------|-----------------------------------|---|---|----------|--|---------|--|
| = | RSGA | STX sender reconciliation field | M | V | X(14) | Must equal SNRF in STX segment | | |
| + | RSGB | STX receiver reconciliation field | M | V | X(14) | Must carry the same EAN location number (GLN) as appears in the UNTO code element of the STX segment | | |

| | MTR | MESSAGE TRAILER | | | M | | | One occurrence is mandatory at the end of each reconciliation message |
|---|------------|-------------------------------|---|---|----------|---|---------|--|
| = | NOSG | Number of segments in message | M | V | 9(10) | Control count of the number of segments comprising message. Always '3' in RSGRSG | | |

End of Transmission segment

| | END | END OF TRANSMISSION | M | | | One occurrence is mandatory at the end of each transmission |
|---|------------|------------------------------------|----------|---|------|--|
| = | NMST | Number of messages in transmission | M | V | 9(5) | Control count of the number of messages in a transmission |