INTERNATIONAL STANDARD

ISO 8583

Third edition
2023-07

Financial-transaction-card-originated messages — Interchange message specifications

Messages initiés par cartes de transaction financière — Spécifications d'échange de messages

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 68, *Financial services*, Subcommittee SC 9, *Information exchange for financial services*.

This third edition cancels and replaces ISO 8583-1:2003, ISO 8583-2:1998 and ISO 8583-3:2003, which have been technically revised.

The main changes are as follows:

— ISO 8583-1 has been restructured to facilitate maintenance of the messages, data elements and code values by a new ISO 8583 maintenance agency (MA). Parts of Clauses 5, 6, 7, 8 and 9 and Annexes A, B, C, D, E and F from that document are now available at https://standards.iso.org/iso/8583 (see A.2.3).

— Corrections and message, element and data code enhancements approved by the ISO 8583 registration and maintenance management group (RMMG) (see A.2.3) since the publication of ISO 8583-1 have been included.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Financial-transaction-card-originated messages — Interchange message specifications

1   Scope

This document specifies a common interface by which financial-transaction-card-originated messages can be interchanged between acquirers and card issuers.

It specifies message structure and format, including normalized data types. Message, field, value definitions and supporting information are provided by the ISO 8583 maintenance agency (MA). Contact and web page information for the ISO 8583 MA can be found at: https://www.iso.org/maintenance_agencies.html.

The method by which messages are transported or settlement takes place is not within the scope of this document.

NOTE   With the proliferation of technology available to financial institutions to offer services to customers, a range of tokens now exist for identifying account relationships (e.g. financial transaction cards). In order to maintain clarity, this document will continue to use card terminology that applies to tokens and cards, unless the element is specific to tokens or cards, in which case it will be identified as such. However, the actual token numeric issued by a financial institution can be different from the associated card numeric.

2   Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 7812-1, *Identification cards — Identification of issuers — Part 1: Numbering system*

ISO/IEC 7816-6, *Identification cards — Integrated circuit cards — Part 6: Interindustry data elements for interchange*

3   Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
account identification
identification of a customer account or relationship, e.g. for the "from" or "to" account

3.2
acquirer
financial institution (or its agent) which acquires from the *card acceptor* (3.6) the data relating to the *transaction* (3.30) and initiates that data into an interchange system

Note 1 to entry: The acquirer remains unchanged throughout a transaction.

3.3
advice
message (3.16) in which the sender notifies the receiver of an action that has been taken, requiring no approval but requiring a *response* (3.27)

3.4
authentication
action of proving that someone or something is genuine

3.5
authorizing agent
institution that acts on behalf of and with the authority of the *card issuer* (3.8)

3.6
card acceptor
party accepting the card and presenting *transaction* (3.30) data to an *acquirer* (3.2)

3.7
cardholder
customer associated with the *primary account number* (3.23) requesting the *transaction* (3.30) from the *card acceptor* (3.6)

3.8
card issuer
financial institution (or its agent) which issues the financial transaction card to the *cardholder* (3.7)

Note 1 to entry: The card issuer remains unchanged throughout a *transaction* (3.30).

3.9
dataset
group of related sub-elements within a composite data element

Note 1 to entry: See 4.4.3.

3.10
dataset bitmap
DBM
bitmap used to identify the presence (denoted by 1) or absence (denoted by 0) of sub-elements within a *dataset* (3.9)

Note 1 to entry: See 4.4.4.4.

3.11
forwarding institution
institution within a *transaction* (3.30) flow that sends a *message* (3.16) forward from the originating institution

Note 1 to entry: See 5.2.5.

3.12
institution identification code
unique number assigned to an institution participating in financial card-originated *message* (3.16) interchange

Note 1 to entry: See 5.2.5.

3.13
instruction
message (3.16) where the sender notifies the receiver of an action to be taken

Note 1 to entry: An *instruction acknowledgement* (3.14) is not sent unless the receiver specifically requests one.

3.14
instruction acknowledgement
message (3.16) in which the receiver notifies the sender that one or more *instruction* (3.13) messages have been received

Note 1 to entry: No financial liability is implied in sending the instruction acknowledgement message.

3.15
maintenance agency
MA
group responsible for the administrative duties related to the maintenance of *messages* (3.16), data elements and code values related to this document, excluding the *institution identification codes* (3.12)

Note 1 to entry: See Clause 7.

3.16
message
set of data elements used to exchange information between institutions (or their agents)

Note 1 to entry: No communications (header or trailer, protocol or character code) or security implications are assumed or identified.

3.17
message bitmap
series of bits used to identify the presence (denoted by 1) or absence (denoted by 0) of each data element in a *message* (3.16)

Note 1 to entry: See 4.3.

3.18
message class
set of *messages* (3.16) which supports the specific activities being performed

3.19
message function
identification of the purpose of a *message* (3.16) and the activity involved

3.20
notification
message (3.16) in which the sender notifies the receiver of an activity taken

Note 1 to entry: A *notification acknowledgement* (3.21) is not sent unless the receiver specifically requests one.

3.21
notification acknowledgement
message (3.16) in which the receiver notifies the sender that one or more *notification* (3.20) messages have been received

Note 1 to entry: No financial liability is implied in sending the notification acknowledgement.

3.22
point of service
POS
card acceptor (3.6) location where the *cardholder* (3.7) agrees the *transaction* (3.30) takes place

3.23
primary account number
PAN
series of digits used to identify a customer account or relationship

Note 1 to entry: See 5.2.6 and ISO/IEC 7812-1.

3.24
receiving institution
institution within a *transaction* (3.30) flow that receives a *message* (3.16) before it reaches the final destination

Note 1 to entry: See 5.2.5.

3.25
repeat
resending of a *request* (3.26) or *advice* (3.3) *message* (3.16) for which no *response* (3.27) was received within the expected time

3.26
request
message (3.16) in which the sender informs the receiver that a *transaction* (3.30) is in progress

Note 1 to entry: A *response* (3.27) is required to complete the activity.

3.27
response
message (3.16) in which the sender informs the receiver that a *request* (3.26) or *advice* (3.3) message was received

Note 1 to entry: The response instructs the receiver on what action to take to complete the original request or advice.

3.28
settlement
transfer (3.33) of funds to complete one or more prior *transactions* (3.30) made, subject to final accounting

3.29
tag-length-value/basic encoding rules
TLV/BER
method of encoding data

Note 1 to entry: This is specified in ISO/IEC 8825-1, ISO/IEC 8825-2 and ISO/IEC 8825-3.

3.30
transaction
one or more related *messages* (3.16) within the same *message class* (3.18) designed to complete (insofar as this is possible) the intention of the sender of the original message

3.31
transaction destination
final institution receiving the *request* (3.26), *advice* (3.3), *notification* (3.20) or *instruction* (3.13) *message* (3.16) in a *transaction* (3.30)

Note 1 to entry: The transaction destination remains unchanged throughout the transaction.

3.32
transaction originator
institution initiating the *request* (3.26), *advice* (3.3), *notification* (3.20) or *instruction* (3.13) *message* (3.16) in a *transaction* (3.30)

Note 1 to entry: The transaction originator remains unchanged throughout the transaction.

3.33
transfer
movement of funds by a *cardholder* (3.7) from one of its accounts to another of its accounts

Note 1 to entry: Both accounts are held by the same financial institution and linked to the same card.

3.34
version
description of interchange *message* (3.16) formats that distinguishes between different arrangements of data elements within *message bitmaps* (3.17) resulting from revisions of this document

Note 1 to entry: See 4.1.2.2.

4 Message structure

4.1 Message components

4.1.1 Sequence

Each message identified in this document shall be constructed in the following sequence:

a) message type (see 4.1.2);

b) one or two message bitmaps (see 4.3);

c) a series of data elements in the order of the message bitmap representation (see 4.4).

4.1.2 Message type

4.1.2.1 General

The first component is the message type and is composed of two elements: a version number (see 4.1.2.2) and a message type identifier (see 4.1.2.3). Every message shall begin with a message type.

4.1.2.2 Version number

A version number shall be assigned when sufficient changes have been made in a revision of this document such that it is necessary to know which version was used to construct a message in order to properly process the message (see Table 1). Version numbers shall not be assigned as the result of editorial or any changes that are managed by the ISO 8583 MA.

Table 1 — Version identification

Code no.	International Standard	Year of publication	Other
0	ISO 8583	1987	—
1	ISO 8583	1993	—
2	ISO 8583-1	2003	—
2a	ISO 8583	2023	—
3 to 7	—	—	Reserved for ISO use
8	—	—	Reserved for national use
9	—	—	Reserved for private use
a Code no. 2 is reused for this edition since no changes have been incorporated into this document that would necessitate a new version to properly construct or parse a message for processing (see Annex A).			

4.1.2.3 Message type identifier

The message type identifier is a three-digit numeric field identifying the message class, message function and transaction originator. The complete list of allocated codes are specified at https://standards.iso.org/iso/8583.
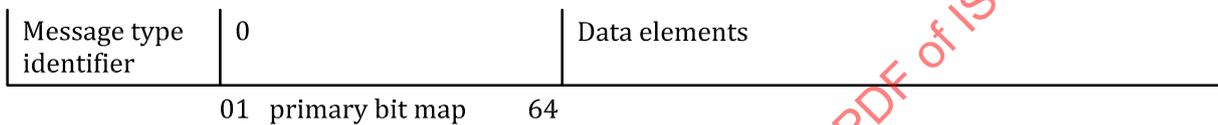
4.2 Message repeats

Whenever a repeat message is identified, that repeat message shall be identical to its original message, with the exception of the message type identifier and, if necessary, date and time transmission and the message authentication code data elements.

4.3 Message bitmaps

The second message component is one or two message bitmaps, each consisting of 64 bits. Each bit signifies the presence (1) or the absence (0) in the message of the data element associated with that particular bit.

The primary message bitmap (bits 1-64) shall always be present and the most frequently used data elements are indexed from these bit positions. Infrequently used data elements are indexed from the secondary message bitmap (bits 65-128). The presence of the secondary message bitmap shall be signified by a "1" in bit 01 of the primary message bitmap (see Figure 1). Bitmap positions for all data elements are defined in a separate document provided at: https://standards.iso.org/iso/8583.

Bit map, primary only

Message type identifier	0	Data elements

01   primary bit map   64

Bit map, primary and secondary

Message type identifier	1	0	Data elements

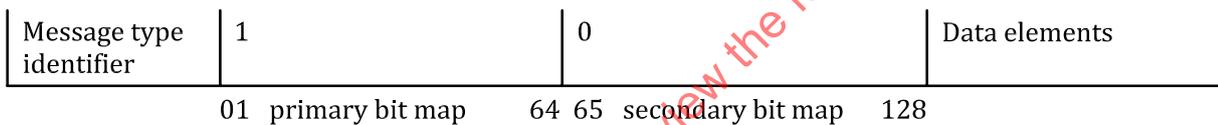01   primary bit map   64 65   secondary bit map   128

Figure 1 — Message bitmaps

4.4 Data element types

4.4.1 General

The third message component is made up of a series of data elements. Messages are constructed using the message bitmap as an index of data elements that are present. Some data elements are of fixed length and some are of variable length. The actual length of any given variable length data element shall be provided in its fixed-length prefix.

There are three types of data elements:

a)   primitive data element (see 4.4.2);

b)   constructed data element (see 4.4.3);

c)   composite data element (see 4.4.4).

The message structure does not preclude the use of additional data elements in a message as required for national or private use.

4.4.2 Primitive data elements

A primitive data element is a data element where the content has no further part or sub-elements, e.g. approval code.

4.4.3   Constructed data element

A constructed data element is a data element where the content consists of a fixed number of sub-elements, all of which shall be present, e.g. amounts original. If there is no data for a particular sub-element it shall contain the relevant default values, e.g. blank or zeroes.

Only the last sub-element may be a variable length sub-element, e.g. original data element. In this case, the last sub-element does not have any preceding length attribute. The actual length of the last sub-element is calculated from the overall length of the constructed data element of which it is a part.

In some cases, the structure of a constructed data element allows for a number of repetitions of the fixed structure, e.g. amounts additional. Although the sub-elements of each repetition are fixed, they are not always sent, for example the number of repetitions is optional within the limits set. Where a repetition is sent, it shall contain all the defined sub-elements.

4.4.4   Composite data elements

4.4.4.1   Structure

A composite data element is a data element where the content consists of a large number of sub-elements. Most of these sub-elements fall into natural categories, e.g. purchase card data, auto rental data, airline data. In practice, any one transaction is likely to require data from only one, or at most a limited number, of these categories.

In order to identify these categories, the concept of a "dataset" has been defined. All the sub-elements that can be included in a particular composite data element are therefore divided into a number of sets of related data (a dataset) and each dataset is given a "dataset identifier".

The structure of a dataset is based on the message structure defined in this document and consists of a second level of bitmap (DBM) which indicates which sub-elements are present in a particular dataset. In addition, provision is made for identifying sub-elements using the tag-length-value/basic encoding rules (TLV/BER) method as specified in ISO/IEC 8825-1, ISO/IEC 8825-2 and ISO/IEC 8825-3 as an alternative to using the second-level bitmap.

Each composite data element can therefore contain a variable number of different datasets and can include both TLV and bitmap formats.

To assist processing, each dataset has a two-digit binary length component immediately following the dataset identifier (see 4.4.4.3). Figure 2 shows the structure of a composite data element within a message.

This definition does not apply to the integrated circuit card (ICC)-related data element, as the linking of related sub-elements shall be accomplished in accordance with the definitions given in ISO/IEC 7816-6. The result is that the dataset identifier is replaced by the T element of the TLV, the dataset length by the L element and the sub-elements by the V element. The TLV can be a constructed data object and/or a series of individual data objects that shall conform with ISO/IEC 7816-6.

Message type identifier (MTI)	Message bit map(s)	Composite data element	Primitive data element	Constructed data element	Composite data element	Primitive data element

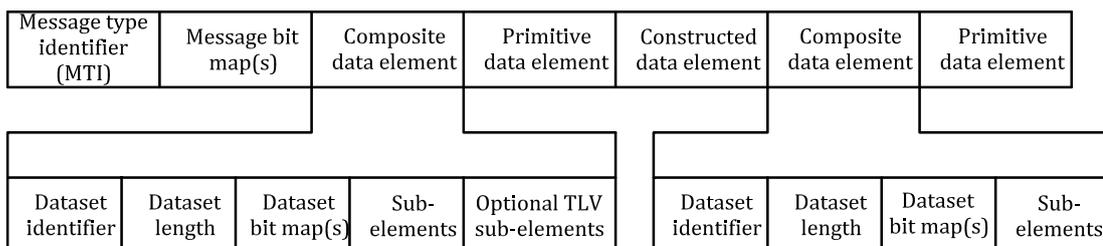| Dataset identifier	Dataset length	Dataset bit map(s)	Sub-elements	Optional TLV sub-elements		Dataset identifier	Dataset length	Dataset bit map(s)	Sub-elements

Figure 2 — Structure of a composite data element

4.4.4.2 Dataset identifiers

4.4.4.2.1 General

Each dataset is given a one-digit binary identifier, allowing up to 256 possible datasets per composite data element. The dataset identifier is the first component of the dataset. Dataset identifiers can have a value between 00 and FF (hexadecimal).

a) The values of 00 and FF are reserved for ISO use.

b) The values (01 to 70) shall only be used for the transmission of TLV sub-elements (see 4.4.4.2.2).

c) The values (71 to FE) shall only be used with DBMs (see 4.4.4.2.3).

The full range of dataset identifiers (01 to FE) is available for allocation within each composite data element that is defined. Thus, there may be more than one instance of any specific dataset identifier value. Unique identification of a specific dataset requires knowing the dataset identifier and the associated composite data element bit position.

4.4.4.2.2 Dataset identifiers 01-70 (TLV format)

These identifiers indicate that all the sub-elements in the dataset are described using TLV encoding. This format allows the transmission of a number of individual, otherwise unrelated, sub-elements. The format of the composite data element is shown in Figure 3.

Dataset identifier (01)	Dataset length	$T_1 L_1 V_1 T_2 L_2 V_2 .... T_n L_n V_n$	Dataset identifier (02)	Dataset length	$T_1 L_1 V_1 T_2 L_2 V_2 .... T_n L_n V_n$

Figure 3 — Dataset identifiers 01-70

4.4.4.2.3 Dataset identifiers 71-FE (bitmap format)

These identifiers indicate that all the sub-elements in the dataset are described using a DBM, which is, in turn, followed by the sub-elements, as indicated in the bitmap. The format is shown in Figure 4. The pattern can be repeated a variable number of times, e.g. for purchasing card line item detail.

Dataset identifier (71)	Dataset length	Dataset bit map	Sub-elements	Dataset identifier (72)	Dataset length	Dataset bit map	Sub-elements

Figure 4 — Dataset identifiers 71-FE

4.4.4.2.4 Dataset identifier FF

This identifier is reserved for possible extension to a future two-digit identifier in case more than 255 identifiers per composite data element are required.

4.4.4.3 Dataset length

The dataset length is a two-digit number where each number is made up of 8 bits. The total length is determined by treating the two digits as a single binary integer, giving a length from 1 to 65 535. This gives the length of the sub-elements and any DBM that follows.

4.4.4.4 Dataset bitmaps (DBMs)

If the dataset identifier is between 71 and FE, the third dataset component is a DBM. The DBM indicates the presence or absence of each of the possible sub-elements within the dataset in the same way as the message bitmaps indicate the presence or absence of data elements in a message (see Figure 5).

The final bit in each DBM is for TLV sub-elements, to allow rarely used sub-elements to be included.

The initial DBM has a length of 16 bits (2 bytes) and is designed to cope with most dataset requirements. Additional (continuation) DBMs may be added and have length of 8 bits (1 byte) each. These bitmaps are chained together using the initial bit of each bitmap. The length of all DBMs is measured as an integral number of bytes.

The presence of a "1" in the first position of any bitmap indicates that another bitmap follows. The presence of a "0" in the first position of a bitmap indicates that it is the last bitmap. This means that bits 01, 17, 25 and so on do not indicate sub-elements but further bitmaps.

Dataset bit map, initial bit map only

Dataset identifier	Length	0	Sub-elements

01   initial bit map   16
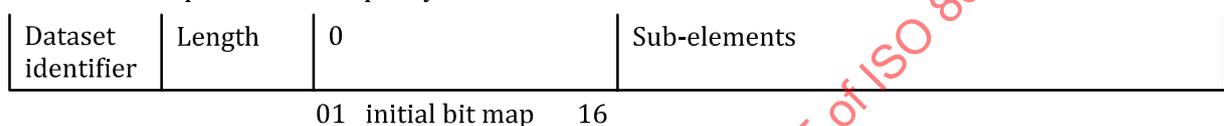
Dataset bit map, initial and continuation bit map

Dataset identifier	Length	1	0	Sub-elements

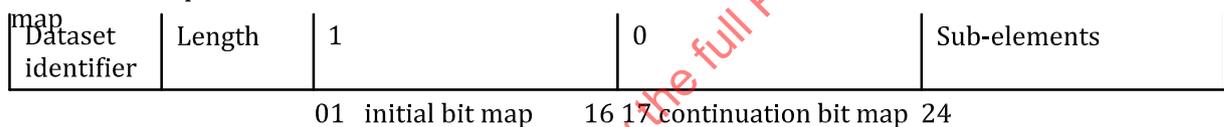01   initial bit map   16 17 continuation bit map 24

Figure 5 — Dataset bitmap examples

4.4.4.5 Sub-elements

The final component of the dataset consists of the sub-elements to be transmitted. These sub-elements are concatenated and, for datasets 71-FE, follow the DBM sequence in the same way as in the messages defined in this document. If the dataset does not have a bitmap (datasets 01-70), the TLV sub-elements can be sent in any order.

5   Data elements

5.1   General

All data elements and sub-elements identified for use in this document are specified at https://standards.iso.org/iso/8583.

5.2   General requirements for data elements

5.2.1   Variable length data elements

For any variable length data element with a maximum length of less than 100 characters, two additional numeric positions shall prefix the data element and shall give its length. For any variable length data element with a maximum length of less than 1 000 characters, three additional numeric positions shall prefix the data element and shall give its length. For any variable length data element with a maximum length of less than 10 000 characters, four additional numeric positions shall prefix the data element and shall give its length.

All length attributes shall be right-justified and zero-filled, for example primary account number (PAN) 123456789012 is represented by 12123456789012. The first "12" indicates 12 digits to follow.

5.2.2 Binary data

5.2.2.1 Binary data elements

Binary data elements shall be grouped into blocks of 8 bits. The length attribute defines the number of such blocks present, for example the personal identification number data element has an attribute "b 8", i.e. eight times 8 bits giving 64 bits of data. In all "b" data elements, blocks of 8 bits are assumed to be left-justified with trailing zeroes.

5.2.2.2 Variable length attributes and binary data elements

If the format indicates a numeric variable length attribute in the first two, three or four positions for a binary data element, the numeric length value contains the number of 8-bit blocks of the binary data element which follows.

Guidance on how messages formatted in accordance with this document can be transmitted across data networks is given at https://standards.iso.org/iso/8583.

5.2.3 Expression of amounts

The amount is a numeric value, expressed without a decimal separator. Where a minor unit of currency applies, the relevant minor unit data element indicates the number of decimal places in the relevant amount. For example, an amount value of 100 in US currency with two minor units is 1 US dollar, but an amount value of 100 in Japanese currency with zero minor units is 100 yen.

The value shall be expressed in the currency of the associated currency code data element. Where there is no associated currency code data element, the currency is that of amount transaction.

When an amount data element has an associated sign, a value of C shall be used for credit and a value of D shall be used for debit. Where such a sign is present, it shall precede the amount. Thus, an amount which is 16 digits long is actually 17 digits with the sign in the leftmost position.

5.2.4 Conversion rates

In conversion rate data elements, the leftmost digit denotes the number of positions the decimal separator shall be moved from the right. Position 2-8 is the rate, for example a conversion rate value of 91234567 would equate to 0.001 234 567. The maximum number of digits to the right of the decimal separator is nine. If the value of the first digit is 8, a single zero after the decimal point is assumed. If the value of the first digit is 9, two zeroes after the decimal point are assumed.

5.2.5 Identification of institutions and routing

5.2.5.1 General

Card-issuing institutions shall be identified by the procedure specified in ISO/IEC 7812-1. Institutions that are not card issuers shall be identified by a code assigned by bilateral agreement (see 7.2).

A transaction can be sent from an acquirer to a card issuer, from a card issuer to an acquirer or from a transaction originator to a transaction destination. However, in the routing of a transaction between these pairs of institutions, other institutions will possibly need to handle the transaction. The data elements forwarding institution identification code and receiving institution identification code facilitate this routing activity. The acquiring institution identification code and PAN data elements contain the same data for the life of the transaction. Where the transaction originator identification code and transaction destination identification code are used, they contain the same data for the life of

the transaction. The contents of the forwarding institution identification code and receiving institution identification code data elements will change as the transaction is sent between institutions.

Table 2, Table 3, Table 4, Figure 6, Figure 7 and Figure 8 show how the institution identifiers are used when the acquirer and the card issuer cannot communicate directly. Where direct communication is possible, the forwarding institution identification code and receiving institution identification code data elements shall not be used.

5.2.5.2 Acquirer to card issuer

In a transaction from an acquirer to a card issuer, the contents of the relevant institution identifier data elements are indicated in Table 2 and graphically in Figure 6. The letters A and B represent other institutions that may be present between acquirers and card issuers. The authorizing agent institution identification code data element shall be used in the response message to indicate where an agent stands in for the card issuer. This data element is not shown as it is not used for routing.

Table 2 — Usage of institution identification codes in acquirer-generated messages

| In request, advice or notification messages			
Institution	**Acquirer to A**	**A to B**	**B to card issuer**
Acquirer	Remains the same throughout the transaction		
Forwarding institution	a	A	B
Receiving institution	A	B	b
Card issuer	Remains the same throughout the transaction		
In response messages			
Institution	Card issuer to B	B to A	A to acquirer
Acquirer	Remains the same throughout the transaction		
Forwarding institution	b	B	A
Receiving institution	B	A	a
Card issuer	Remains the same throughout the transaction		
a Not used when the forwarding or receiving institution is the acquirer.			
b Not used when the receiving or forwarding institution is the card issuer.			
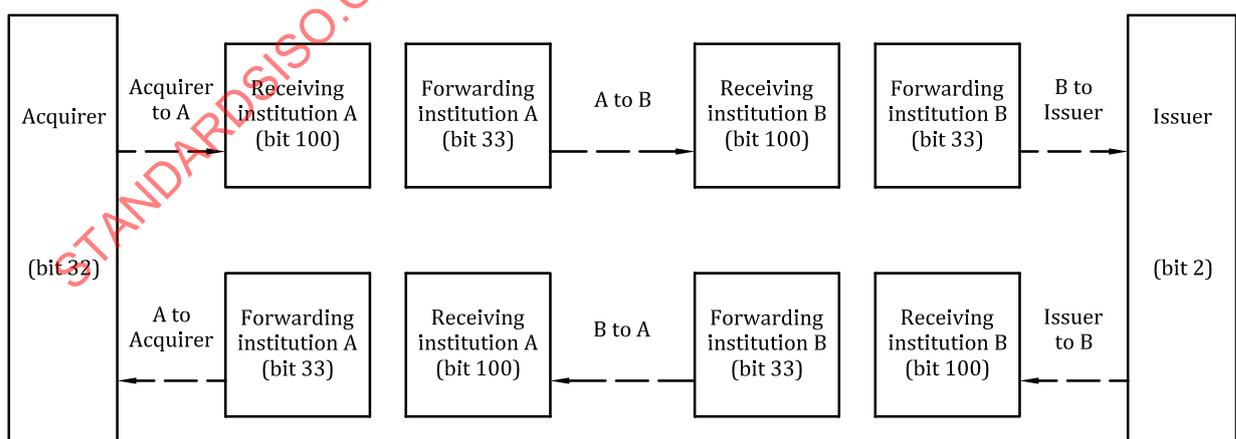
Figure 6 — Usage of institution identification codes in acquirer-generated messages

5.2.5.3 Card issuer to acquirer

In a transaction from a card issuer to an acquirer, the contents of the relevant institution identifier data elements are indicated in Table 3 and graphically in Figure 7. The letters A and B represent other institutions that may be present between card issuers and acquirers.

Table 3 — Usage of institution identification codes in card-issuer-generated messages

| In request, advice or notification messages			
Institution	**Card issuer to A**	**A to B**	**B to acquirer**
Card issuer	Remains the same throughout the transaction		
Forwarding institution	a	A	B
Receiving institution	A	B	b
Acquirer	Remains the same throughout the transaction		
In response messages			
Institution	Acquirer to B	B to A	A to card issuer
Card issuer	Remains the same throughout the transaction		
Forwarding institution	b	B	A
Receiving institution	B	A	a
Acquirer	Remains the same throughout the transaction		
a Not used when the forwarding or receiving institution is the card issuer.			
b Not used when the receiving or forwarding institution is the acquirer.			
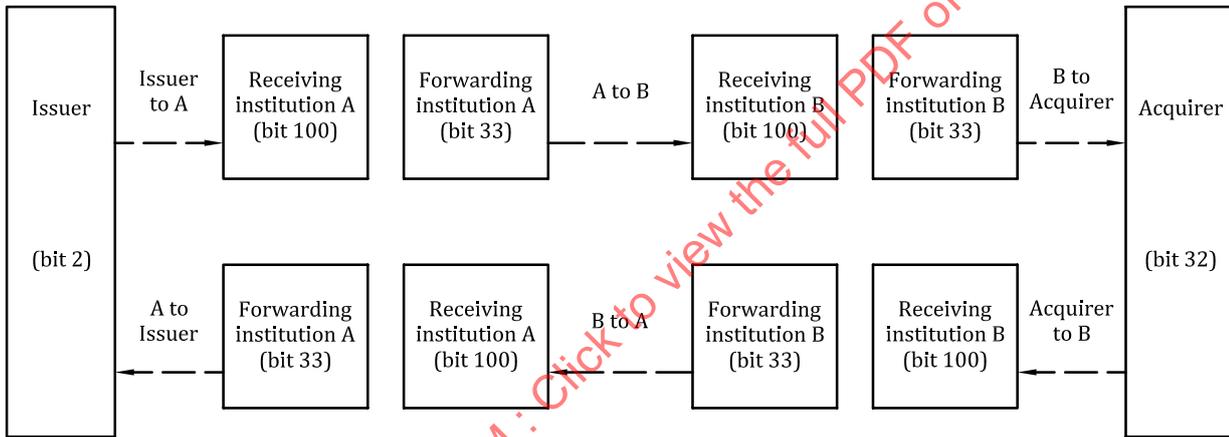
Figure 7 — Usage of institution identification codes in card-issuer-generated messages

5.2.5.4 Transaction originator to transaction destination

In a transaction from a transaction originator to a transaction destination, the contents of the relevant institution identifier data elements are indicated in Table 4 and graphically in Figure 8. The letters A and B represent other institutions that may be present between the transaction originator and transaction destination.

Table 4 — Usage of institution identification codes in transaction-originator-generated message

In request, advice notification or instruction messages			
Institution	**Originator to A**	**A to B**	**B to destination**
Transaction originator	Remains the same throughout the transaction		
Forwarding institution	a	A	B
Receiving institution	A	B	b
Transaction destination	Remains the same throughout the transaction		
a Not used when the forwarding or receiving institution is the transaction originator.			
b Not used when the receiving or forwarding institution is the transaction destination.			

Table 4 *(continued)*

| In request, advice notification or instruction messages			
Institution	**Originator to A**	**A to B**	**B to destination**
In response messages			
Institution	Destination to B	B to A	A to originator
Transaction originator	Remains the same throughout the transaction		
Forwarding institution	b	B	A
Receiving institution	B	A	a
Transaction destination	Remains the same throughout the transaction		
a Not used when the forwarding or receiving institution is the transaction originator.			
b Not used when the receiving or forwarding institution is the transaction destination.			
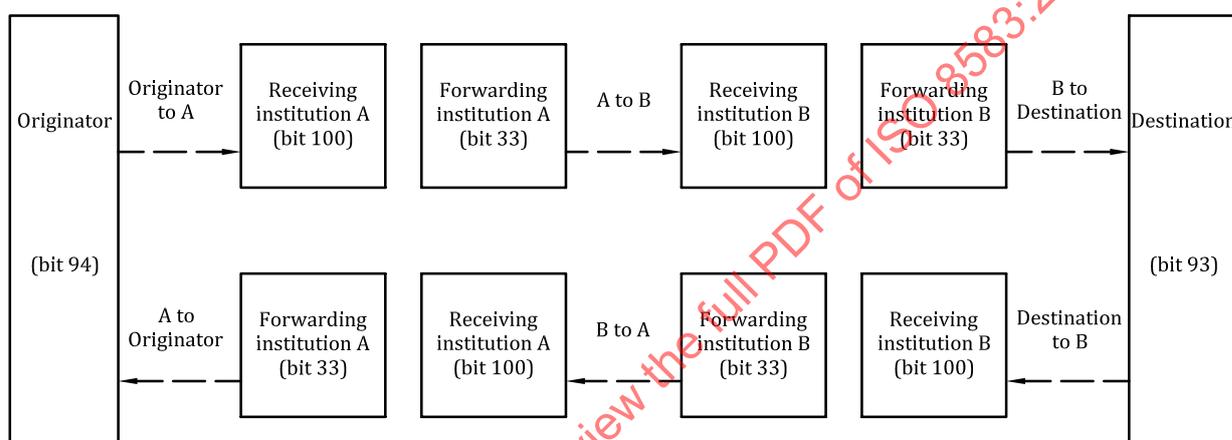
Figure 8 — Usage of institution identification codes in transaction-originator-generated messages

5.2.6 Identification of account numbers

The PAN shall contain the account number used to identify a customer account or relationship and shall remain unchanged for the life of a transaction.

The following data elements shall be used to identify specific accounts held by the cardholder at the card issuer and, if present, they shall remain unchanged for the life of a transaction:

a)   account identification 1;

b)   account identification 2.

5.2.7 Tag length value (TLV) data

Within a number of data elements, there is a provision made for data to be encoded in TLV format. This document follows the conventions defined in ISO/IEC 8825-1, ISO/IEC 8825-2 and ISO/IEC 8825-3 in the creation of tag values.

6 Messages and transactions

6.1 General

This document specifies a message protocol, i.e. the circumstances under which particular messages or transactions shall (or may) be sent, the relationship between one message or transaction and another,

but not the commercial responsibilities which flow from a particular message or transaction being transmitted.

6.2   Message protocol

Messages are made up of a number of data elements, as indicated by the bitmap. Data elements can be mandatorily present, conditionally present or optional in a message, depending on the activity being undertaken. The specific conditions applicable to each data element in each message type are defined at https://standards.iso.org/iso/8583.

Nothing prohibits the use of any data element within any message. Messages may include additional data elements to those specified as mandatory and/or conditional. The use of these additional data elements in a message is subject to bilateral agreement.

6.3   Message errors

There are three types of errors which can occur when processing messages:

a)   The message type identifier (MTI) is unrecognizable or the message cannot be parsed.

For this type of error there is no response message which can be sent, so the error message processing described in the content available at https://standards.iso.org/iso/8583 shall be used.

b)   A notification or instruction message is received which can be identified correctly but there are errors within the message data elements.

For this type of error there is no response message which can be sent, so the error message processing described in the content available at https://standards.iso.org/iso/8583 shall be used.

c)   A request or advice message is received which can be identified correctly but there are errors within the message data elements.

In this case, there is a specified response message available and this shall be sent along with the message error indicator data element (see content available at https://standards.iso.org/iso/8583).

6.4   Transaction relationships

Although the activities described in the following clauses are described as stand-alone activities, in reality they are usually linked in support of a single instance of business at a point of service (POS). Figure 9 shows sequences of transactions which impact reconciliation, relating to a single instance of business at a POS, in a full implementation of this document. Please see the content available at https://standards.iso.org/iso/8583 for a description of these transactions.

Start
sequence

Authorization

Financial

Reversal

Chargeback

End
sequence

Key

☐ transaction

—— order in which transaction shall occur
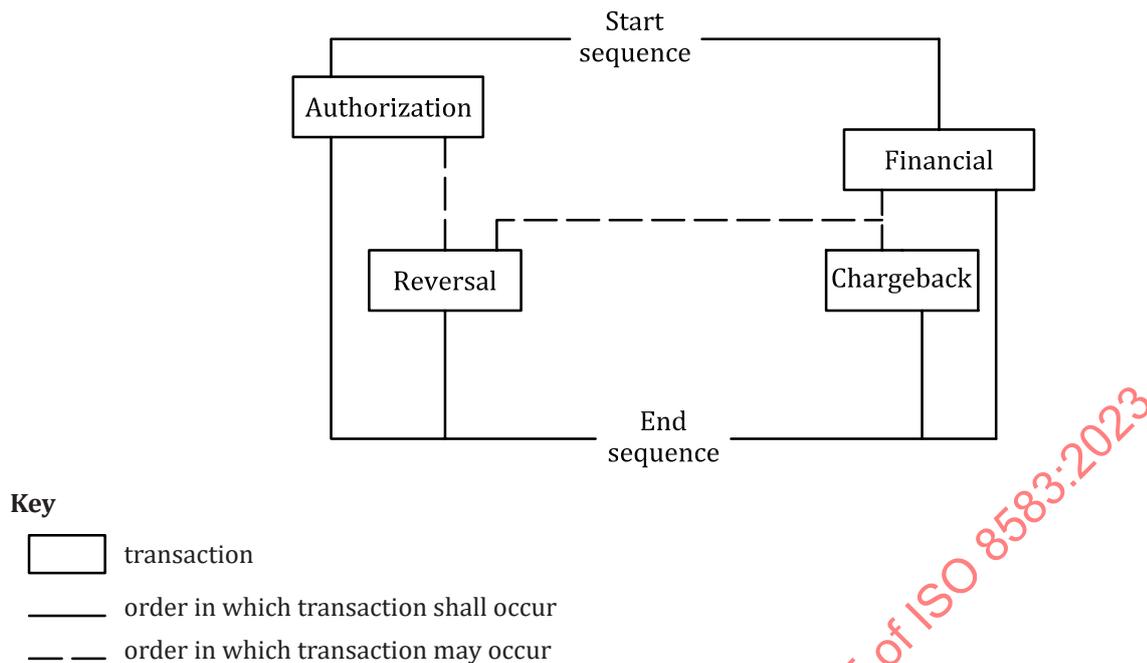
— — order in which transaction may occur

Figure 9 — Example transaction flows for 1xx, 2xx and 4xx transactions

7 Maintenance

7.1 General

The ISO 8583 MA is the body established by TC 68/SC 9 and empowered to act on its behalf in the maintenance of messages, data elements, code values and examples that are related to this document. The MA maintains this information in separate annex documents at https://standards.iso.org/iso/8583.

The name and contact information of the maintenance agency for this document can be found at https://www.iso.org/maintenance_agencies.html.

7.2 Allocation of institution identification codes

Any institution already holding an identification number assigned through ISO/IEC 7812-1 shall use that identification number as their institution identification code.

For those institutions who are not eligible for a card issuer identification number (IIN) assigned through the procedures specified in ISO/IEC 7812-1, the institution identifier code shall be assigned per bilateral or implementation agreement.