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

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

iTeh STANDARD PREVIEW  
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ISO 8583:2023

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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](http://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](http://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](http://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](http://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](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.//standards.iteh.ai/catalog/standards/sist/b2a1591e-21dd-4f26-934c-415b4952957c/iso-8583-2023](https://standards.iteh.ai/catalog/standards/sist/b2a1591e-21dd-4f26-934c-415b4952957c/iso-8583-2023)

**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	—
2 <sup>a</sup>	ISO 8583	2023	—
3 to 7	—	—	Reserved for ISO use
8	—	—	Reserved for national use
9	—	—	Reserved for private use

<sup>a</sup> 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

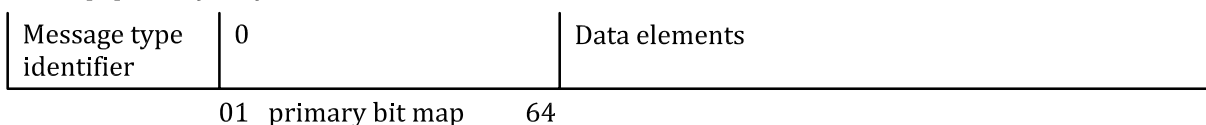
Whenever a repeat message is identified, that repeat message shall be identical to its original message, with the exception of the message type identifier and, if necessary, date and time transmission and the message authentication code data elements.

## 4.3 Message bitmaps

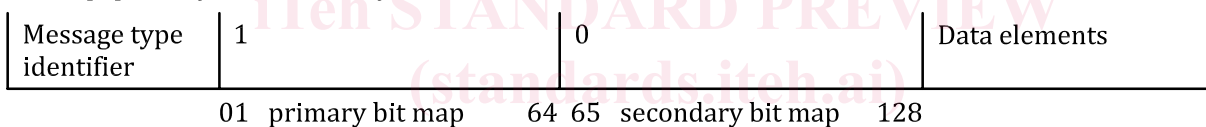
The second message component is one or two message bitmaps, each consisting of 64 bits. Each bit signifies the presence (1) or the absence (0) in the message of the data element associated with that particular bit.

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



Bit map, primary and secondary



**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:

- primitive data element (see [4.4.2](#));
- constructed data element (see [4.4.3](#));
- 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.

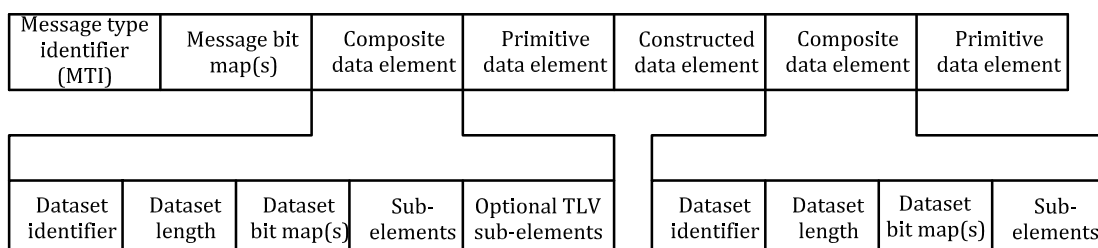


Figure 2 — Structure of a composite data element