INTERNATIONAL STANDARD

ISO 8583-1

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Financial transaction card originated messages — Interchange message specifications —

Part 1: Messages, data elements and code values

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

Partie 1: Messages, éléments de données et valeurs de code

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8583-1 was prepared by Technical Committee ISO/TC 68, *Banking, securities and other financial services*, Subcommittee SC 6, *Retail financial services*.

ISO 8583 consists of the following parts, under the general title *Financial transaction card originated messages — Interchange message specifications*:

— *Part 1: Messages, data elements and code values*

— *Part 2: Application and registration procedures for Institution Identification Codes (IIC)*

— *Part 3: Maintenance procedures for messages, data elements and code values*

Introduction

Services of the financial industry include the exchange of electronic messages relating to financial transactions. Agreements on application specifications are generally at a private level. This International Standard is designed as an interface specification enabling messages to be exchanged between systems adopting a variety of application specifications. The application specification may remain at the private level. Designers of such applications have complete design freedom within the overall constraint that messages shall be convertible to this interface format in order that international interchange may take place.

This International Standard uses a concept called a bit map, whereby each data element is assigned a position indicator in a control field, or bit map. A one in the assigned position indicates the presence of a data element in a specific message. A zero in the assigned position indicates the absence of a data element in a specific message.

Data representation used in individual systems is subject to the commercial relationships between the parties contracting to each system. The message formats specified in this International Standard are designed to ensure that compatibility between systems conforming to this International Standard is always feasible.

In a number of cases, the names of data elements and message classes can become confusing when used in descriptive paragraphs. The word authorization is a typical example. It is an activity undertaken by a card issuer, it is the name of a message class where an acquirer requests a card issuer to undertake the activity and it is also a word used in many data element names.

To aid clarity, the following conventions are followed within this International Standard:

— data element names have the first letter capitalized;

— data element names are shown in *italics* except when used in tables or figures;

— message class names are shown capitalized when the context refers to their use in messages or transactions.

ISO 8583:1993 has been revised to be published in three parts. A number of changes have been made to accommodate the latest advances in payment technologies and the opportunity has also been taken to improve the layout and readability. A summary of the most significant changes between ISO 8583:2003 (all parts) and ISO 8583:1993 is provided in Annex F.

Financial transaction card originated messages — Interchange message specifications —

Part 1: Messages, data elements and code values

1 Scope

This part of ISO 8583 specifies a common interface by which financial transaction card-originated messages can be interchanged between acquirers and card issuers.

It specifies message structure, format and content, data elements and values for data elements. The method by which settlement takes place is not within the scope of this part of ISO 8583.

NOTE With the proliferation of technology available to financial institutions to offer services to customers, a range of tokens (financial transaction cards, digital certificates etc.) now exist for identifying account relationships. In order to maintain clarity, this part of ISO 8583 will continue to refer only to financial transaction cards as the token. However, readers should be aware that the actual token issued by a financial institution may be different.

2 Normative references

The following referenced documents are indispensable for the application 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 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*

ISO 4217, *Codes for the representation of currencies and funds*

ISO 4909, *Bank cards — Magnetic stripe data content for track 3*

ISO 7372, *Trade data interchange — Trade data elements directory*

ISO 7811-2, *Identification cards — Recording technique — Part 2: Magnetic stripe — Low coercivity*

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

ISO 7813, *Identification cards — Financial transaction cards*

ISO 7816-6, *Identification cards — Integrated circuit(s) cards with contacts — Part 6: Interindustry data elements*

ISO 8583-2, *Financial transaction card originated messages — Interchange message specifications — Part 2: Application and registration procedures for Institution Identification Codes (IIC)*

ISO 8583-3:—[1], *Financial transaction card originated messages — Interchange message specifications — Part 3: Maintenance procedures for messages, data elements and code values*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 8825 (all parts), *Information technology — ASN.1 encoding rules*

ISO 9564-1, *Banking — Personal Identification Number (PIN) management and security — Part 1: Basic principles and requirements for online PIN handling in ATM and POS systems*

ISO 9807, *Banking and related financial services — Requirements for message authentication (retail)*

ISO 13492, *Banking — Key management related data element (retail)*

ISO 18245:—[2], *Retail financial services — Merchant category codes*

3 Terms and definitions

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

3.1
acquirer
financial institution (or its agent) which acquires from the card acceptor the data relating to the transaction and initiates that data into an interchange system

NOTE The acquirer remains unchanged throughout a transaction.

3.2
address verification
process of comparing data from the point of service (POS) with that held by the card issuer to verify the cardholder's billing address

3.3
advice
message where the sender notifies the receiver of an activity that has been taken, requiring no approval but requiring a response

3.4
aggregation
total amount of a number of transactions where details of the individual transactions that make up the total are not provided or recoverable

3.5
attended transaction
transaction where the acquirer has indicated that the card, cardholder and card acceptor representative are all present at the time of the transaction

3.6
authentication
action of proving that someone or something is genuine

1) To be published. (Revision of ISO 8583-3:1998)

2) To be published.

3.7
authorizing agent
institution that acts on behalf of and with the authority of the card issuer

3.8
card acceptor
party accepting the card and presenting transaction data to an acquirer

3.9
cardholder
customer associated with the primary account number requesting the transaction from the card acceptor

3.10
card issuer
financial institution (or its agent) which issues the financial transaction card to the cardholder

NOTE The card issuer remains unchanged throughout a transaction.

3.11
card issuer back up total
total amount for all transactions (for an agreed set of parameters) provided when the detail of each transaction has been lost

3.12
credit transaction
claim for funds by the cardholder for the credit of his account

NOTE At the same time, the transaction provides details of funds acknowledged as payable by the acquirer (and/or the card acceptor) to the card issuer.

3.13
dataset
group of related sub-elements within a composite data element

NOTE See 5.4.4.1.

3.14
dataset bit map
DBM
bit map used to identify the presence (denoted by 1) or absence (denoted by 0) of sub-elements within a dataset

NOTE See 5.4.4.4.

3.15
debit transaction
approval by the cardholder of the debit to his account

NOTE At the same time, the transaction provides a claim of funds made by the acquirer (and/or the card acceptor) against the card issuer.

3.16
electronic purse
application within an integrated circuit card (ICC)

NOTE The application allows the cardholder to have electronic value stored in the purse.

3.17
fallback
transaction that is processed using a card reading technology that is not the card issuer's preferred card reading technology

NOTE This might be where a magnetic stripe is used, although the card has an ICC containing the same application as identified on the magnetic stripe, and the POS has an ICC reader or the magnetic stripe read failed and the card details were keyed into the POS.

3.18
file
collection of *Data record* data elements

3.19
forwarding institution
institution within a transaction flow that sends a message forward from the originating institution

NOTE See 6.2.5.

3.20
inquiry
message (from the authorization message class) that requests information

3.21
institution identification code
unique number assigned to an institution participating in financial card originated message interchange

NOTE See 6.2.5 and 10.2.

3.22
instruction
message where the sender notifies the receiver of an activity to be taken

NOTE An instruction acknowledgement is not sent unless the receiver specifically requests one.

3.23
instruction acknowledgement
message where the receiver notifies the sender that one or more instruction messages has been received

NOTE No financial liability is implied in sending the instruction acknowledgement message.

3.24
linked load
electronic purse load transaction where the account providing the electronic purse is the same as the account providing the funds

NOTE Only one transaction is sent to the institution to both authenticate the purse and to secure the value for the load.

3.25
load transaction
transaction performed whereby value from the cardholder's source of funds (e.g. the funding account or cash) is transferred to an electronic purse

NOTE In return, the electronic purse card issuer receives payment from the cardholder's funding source.

3.26
maintenance agency
MA
group responsible for the administrative duties related to the maintenance of this part of ISO 8583, excluding the institution identification code

NOTE See Clause 10.

3.27
message
set of data elements used to exchange information between institutions (or their agents)

NOTE No communications (header/trailer, protocol, or character code) or security implications are assumed or identified.

3.28
message bit map
series of bits used to identify the presence (denoted by 1) or absence (denoted by 0) of each data element in a message

NOTE See 5.3.

3.29
message class
set of messages which supports the specific activities being performed

3.30
message function
identification of the purpose of a message and the activity involved

3.31
notification
message where the sender notifies the receiver of an activity taken

NOTE A notification acknowledgement is not sent unless the receiver specifically requests one.

3.32
notification acknowledgement
message where the receiver notifies the sender that one or more notification messages has been received

NOTE No financial liability implied in sending the notification acknowledgement.

3.33
payment
movement of funds from a cardholder account to another party

EXAMPLE A utility bill payment.

3.34
point of service
POS
card acceptor location where the cardholder agrees the transaction takes place

3.35
receiving institution
institution within a transaction flow that receives a message before it reaches the final destination

NOTE See 6.2.5.

3.36
registration authority
group responsible for the administrative duties related to the maintenance of institution identification codes

NOTE See Clause 10.

3.37
registration and maintenance management group
RMMG
group responsible for the allocation of institution identification codes (as specified in ISO 8583-2) and the approval of changes to this part of ISO 8583 (as specified in ISO 8583-3)

NOTE See Clause 10.

3.38
repeat
resending of a request or advice message for which no response was received within the expected time

3.39
replacement authorization
authorization used when a previous authorization was approved and a subsequent authorization is required

NOTE This is used when, for example, the *Amount transaction* is now different from the originally approved amount (see 8.2.1).

3.40
representment
transaction (from the financial presentment message class) originated by an acquirer to partially or wholly recover funds previously charged back to the acquirer by a card issuer

NOTE See 8.4.1.

3.41
request
message where the sender informs the receiver that a transaction is in progress

NOTE A response is required to complete the activity.

3.42
response
message where the sender informs the receiver that a request or advice message was received

NOTE The response instructs the receiver on what action to take to complete the original request or advice.

3.43
resubmission
re-entry of a request message which was previously denied or rejected

NOTE See 8.2.1 and 8.4.1.

3.44
settlement
transfer of funds to complete one or more prior transactions made, subject to final accounting

3.45
settlement institution
financial institution (or its agent) at which the accounts are held by the parties settling

NOTE This institution, acting on information provided by the parties, transfers the appropriate funds between the accounts.

3.46
supplementary authorization
authorization used when a previous authorization was approved and one or more subsequent authorizations are required for additional amounts

NOTE See 8.2.1.

3.47
tag-length-value (basic encoding rules)
TLV/BER
method of encoding data, as specified in ISO 8825 (all parts)

3.48
transaction
one or more related messages within the same message class designed to complete (insofar as this is possible) the intention of the sender of the original message

3.49
transaction destination institution
final institution receiving the request, advice, notification or instruction message in a transaction

NOTE The transaction destination remains unchanged throughout the transaction.

3.50
transaction information document
any type of transaction information including form sets, sales slips, vouchers, terminal receipts, record of charge, substitute drafts etc.

3.51
transaction originator institution
institution initiating the request, advice, notification or instruction message in a transaction

NOTE The transaction originator remains unchanged throughout the transaction.

3.52
transfer
movement of funds by a cardholder from one of its accounts to another of its accounts

NOTE Both accounts are held by the same financial institution.

3.53
truncation
transactions stopped at some point in the process before they reach the receiver

3.54
unattended transaction
transaction where the acquirer has indicated that one or other of the card, cardholder or card acceptor representative are not present at the time of the transaction

3.55
unlinked load
electronic purse load transaction where the account providing the electronic purse is different from the account providing the funds

NOTE There is one transaction to the institution providing the electronic purse to authenticate the purse and another transaction to the institution providing the funds to secure the value for the load.

3.56
unload transaction
transaction performed whereby value from an electronic purse is transferred to a cardholder's account

3.57
verification
action of comparing data with a known source

3.58
version
description of interchange message formats that distinguishes between different arrangements of data elements within message bit maps resulting from revisions of this part of ISO 8583

NOTE This is where the data elements are added, deleted or their meaning, position or format changes or the message flows are modified (see 5.1.2.2).

4 Symbols (and abbreviated terms)

4.1 Representation abbreviations

A large part of this part of ISO 8583 consists of the definition of data elements. Part of the definition is the description of the permissible contents such as numeric only or alphanumeric, etc. These requirements are indicated via abbreviations, which are detailed in Table 1. These symbols and abbreviations are compatible with those specified in ISO 7372.

All fixed length "n" data elements are assumed to be right justified with leading zeroes. All other fixed length data elements are left justified with trailing spaces. In all "b" data elements, blocks of 8 bits are assumed to be left justified with trailing zeroes. All data elements are counted from left to right, i.e. the leftmost position is number 1.

Table 1 — Representation abbreviations

Abbreviation	Definition
..17	Variable length of up to maximum 17 characters. All variable length fields shall in addition contain two, three or four positions at the beginning of the data element to identify the number of positions following to the end of that data element.
3	Fixed length of three characters.
a	Alphabetical characters, A through Z and a through z.
an	Alphabetic and numeric characters.
anp	Alphabetic, numeric and space (pad) characters.
ans	Alphabetic, numeric and special characters.
ansb	Alphabetic, numeric, special characters and binary representation of data.
as	Alphabetic and special characters.
b	Binary representation of data.
CCYY	Century and year, 0000 through 9999 (in accordance with ISO 8601).
DD	Day, 01 through 31.
hh	Hour, 00 through 23.
LL	Length of variable data element that follows, 01 through 99.
LLL	Length of variable data element that follows, 001 through 999.
LLLL	Length of variable data element that follows, 0001 through 9999.
MM	Month, 01 through 12.
mm	Minute, 00 through 59.
n	Numeric digits, 0 through 9.
ns	Numeric and special characters.
p	Pad character (i.e. space).
s	Special characters.
ss	Second, 00 through 59.
VAR	Variable length data element.
xn	Numeric data with a preceding sign of "c" for credit, "d" for debit, e.g. xn 17 in amount, net reconciliation means prefix "c" or "d" and 16 digits of amount.
YY	Year, 00 through 99.
z	Tracks 2 and 3 code set as specified in ISO 4909, ISO 7811-2 and ISO 7813.

4.2 Abbreviated terms

Abbreviations when used within this part of ISO 8583 have the following meanings:

— ATM: automatic teller machine;
— CAD: card acceptor device (also known as a terminal);
— CAT: cardholder activated terminal;
— GMT: greenwich mean time;
— MAC: message authentication code;
— MTI: message type identifier;
— PAN: primary account number;
— PIN: personal identification number;
— RFID: radio frequency input device;
— RMMG: registration and maintenance management group;
— URL: universal resource locator;
— UTC: universal co-ordinated time.

5 Message structure

5.1 Message components

5.1.1 Sequence

Each message identified in this part of ISO 8583 shall be constructed in the following sequence:

a) message type (see 5.1.2);

b) one or two message bit maps (see 5.3);

c) a series of data elements in the order of the message bit map representation (see 5.4).

5.1.2 Message type

5.1.2.1 General

The first component is the message type and is composed of two elements, a version number (see 5.1.2.2) and a message type identifier (see 5.1.2.3). Every message shall begin with a message type.

5.1.2.2 Version number

A version number shall be assigned when sufficient changes have been made in a revision of the International Standard such that it is necessary to know which version was used to construct a message in order to properly process the message (see Table 2). Version numbers shall not be assigned as the result of editorial or code changes. Clause 10 gives the details of the means by which changes to this part of ISO 8583 that do not require a new version number may be requested.

Table 2 — Version identification

Code no.	International Standard no.	Year of publication	Other
0	ISO 8583	1987	—
1	ISO 8583	1993	—
2	ISO 8583	2003	—
3-7	—	—	Reserved for ISO use
8	—	—	Reserved for ISO use
9	—	—	Reserved for ISO use

5.1.2.3 Message type identifier

The message type identifier is a three digit numeric field identifying the message class, message function and transaction originator. See Clause A.12 for the complete list of possible codes and the list of allocated codes. The use of unallocated codes is subject to bilateral agreement.

5.2 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.

5.3 Message bit maps

The second message component is one or two message bit maps, 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 bit map (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 bit map (bits 65-128). The presence of the secondary message bit map shall be signified by a “1” in bit 01 of the primary message bit map (see Figure 1). Bit map positions for all data elements are defined in this part of ISO 8583 and listed in Table 3.

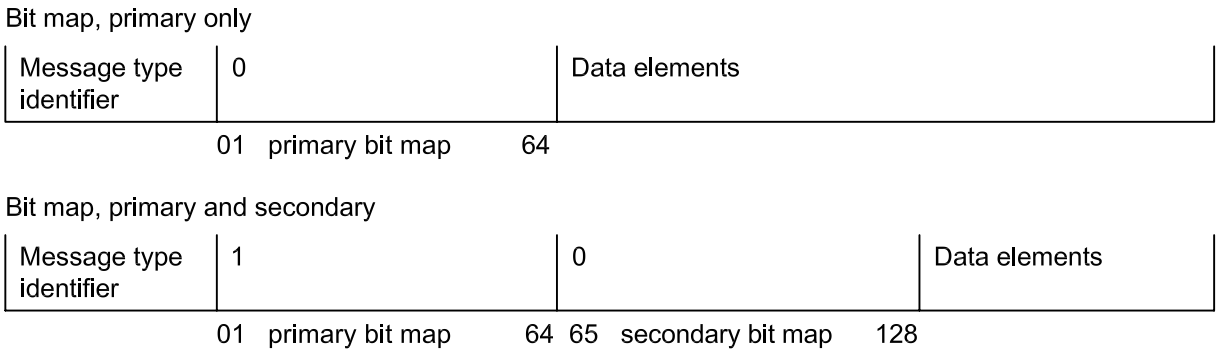


Figure 1 — Message bit maps

5.4 Data elements

5.4.1 Data element types

The third message component is made up of a series of data elements. Messages are constructed using the message bit map 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 5.4.2);

b) constructed data element (see 5.4.3);

c) composite data element (see 5.4.4).

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

5.4.2 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*.

5.4.3 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 etc.

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 may not always be sent, e.g. the number of repetitions is optional within the limits set. Where a repetition is sent, it shall contain all the defined sub-elements.

5.4.4 Composite data elements

5.4.4.1 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 etc. 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 part of ISO 8583 and consists of a second level of bit map (dataset bit map) which indicates which sub-elements are present in a particular dataset. In addition, provision is made for identifying sub-elements using the TLV (Tag-length-value) method as specified in ISO 8825 (all parts) as an alternative to using the second level bit map.

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

To assist processing, each dataset has a two-digit binary length component immediately following the dataset identifier (see 5.4.4.3). Figure 2 shows the structure of a composite data element within a message.

The above definition does not apply to the *Integrated circuit card (ICC) related data* data element as the linking of related sub-elements is accomplished in accordance with the definitions given in ISO 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 either a constructed data object and/or a series of individual data objects as specified in ISO 7816-6 (see 6.5.5).

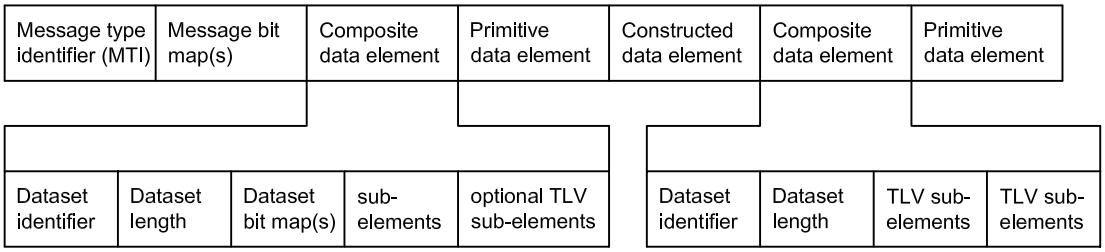


Figure 2 — Structure of a composite data element

5.4.4.2 Dataset identifiers

5.4.4.2.1 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 (01-70) shall only be used for the transmission of TLV sub-elements (see 5.4.4.2.2).

c) The values (71-FE) shall only be used with dataset bit maps (see 5.4.4.2.3).

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.

See Clause A.7 for the list of composite data elements and the associated dataset identifier allocations.

5.4.4.2.2 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.

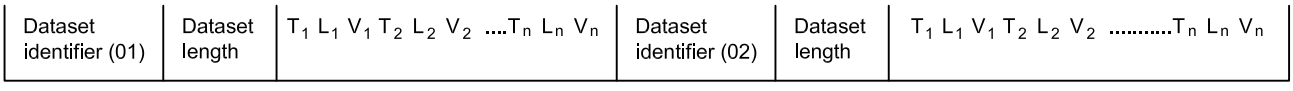


Figure 3 — Dataset identifiers 01-70

5.4.4.2.3 Dataset identifiers 71-FE (bit map format)

These identifiers indicate that all the sub-elements in the dataset are described using a dataset bit map, which is, in turn, followed by the sub-elements, as indicated in the bit map. 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.

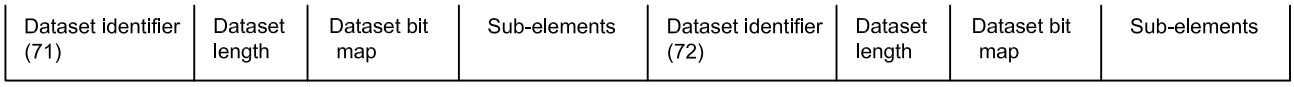


Figure 4 — Dataset identifiers 71-FE

5.4.4.2.4 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.

5.4.4.3 Dataset length

The dataset length is a two-digit number where each number is made up of eight 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 dataset bit map that follows.

5.4.4.4 Dataset bit maps (DBM)

If the dataset identifier is between 71 and FE, the third dataset component is a dataset bit map (DBM). The bit map indicates the presence or absence of each of the possible sub-elements within the dataset in the same way as the message bit maps 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 a length of 8 bits (1 byte) each. These bit maps are chained together using the initial bit of each bit map. The length of all DBMs is measured as an integral number of bytes.

The presence of a “1” in the first position of any bit map indicates that another bit map follows. The presence of a “0” in the first position of a bit map indicates that it is the last bit map. This means that bits 01, 17, 25 etc. do not indicate sub-elements, but further bit maps.

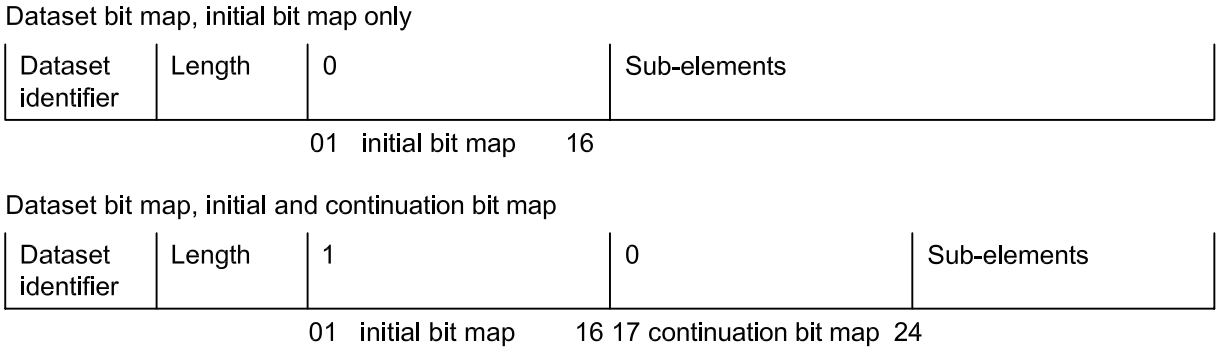


Figure 5 — Dataset bit map examples

5.4.4.5 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 dataset bit map sequence, in the same way as in the messages defined in this part of ISO 8583. If the dataset does not have a bit map (datasets 01-70), the TLV sub-elements can be sent in any order.

6 Data elements

6.1 Data element directory

All data elements and sub-elements identified in this part of ISO 8583 are listed in alphabetical order in Table 3 and in numeric order by message bit map in Annex B.

An X in the column headed “Cons.” indicates a constructed data element. Data elements that are themselves part of a constructed data element are included in Table 3 with the relevant message bit number indicated in the column headed “Cons”.

An X in the column headed “Comp.” indicates a composite data element. Data elements that are themselves part of a composite data element are included in Table 3 with the relevant message bit number and dataset identifier indicated in the column headed “Comp”.

Codes under the control of the ISO 8583 RMMG (see 10.2) are listed in Annex A and referenced in the “notes” column in Table 3. Codes with a fixed number of possible values (e.g. Y or N etc.) are listed directly in the format column in Table 3. If the code is not under the control of the RMMG, for this part of ISO 8583 the organization which maintains the list of allocated values is indicated in the notes column in Table 3.

Table 3 — Data element directory

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Account based digital signature	A digital signature created by the private part of the private/public key pair supplied by a card issuer to a cardholder and linked to the cardholder's account on which the card is issued.	LLVAR	b..90	(see 6.2.1, 6.2.2 and 6.5.1)			34-71
Account identification 1	A series of digits and/or characters used to identify a customer account or relationship, e.g. for the “from” account.	LLVAR	ans..28	(see 6.2.1 and 6.2.6)	102		
Account identification 2	A series of digits and/or characters used to identify a customer account or relationship, e.g. for the “to” account.	LLVAR	ans..28	(see 6.2.1 and 6.2.6)	103		
Account type additional amounts	Code used to describe the accounts affected. Contained in *Amounts additional*.		an 2	(see 6.4.14 and A.17.2)		54	
Account type code 1	Code which identifies the type of account to be updated. Used in conjunction with the *Transaction type code* as part of the *Processing code*.		an 2	(see 6.4.1 and A.17.2)		3	
Account type code 2	Code which identifies the type of account to be updated. Used in conjunction with the *Transaction type code* as part of the *Processing code*.		an 2	(see 6.4.1 and A.17.2)		3	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Acquirer number	First six digits of the *Acquiring institution identification code.*		n 6	(see 6.4.12)		31	
Acquirer reference number	Data supplied by an acquirer to assist in identifying a transaction, e.g. for researching retrievals and chargebacks.		n 23	(see 6.4.12)	31	X	
Acquiring institution identification code	Code identifying the acquirer.	LLVAR	n..11	(see 6.2.1 and 6.2.5)	32		
Action code	A code which defines the action taken or to be taken as well as the reason for taking this action.		n 4	(see 6.3.2 and Clause A.1)	39		
Additional data national	Reserved for national organizations to define data unique to country applications. The use of this data element is under the control of national bodies.	LLLVAR	ans..999	(see 6.2.1)	47		
Additional data private	Reserved for private data. The use of this data element is determined by bilateral agreement.	LLLVAR	ans..999	(see 6.2.1)	48		
Additional identification reference number	Identification number on additional identification document.	LLVAR	ans..30	(see 6.2.1 and 6.5.4)			49-71
Additional identification type	Type of additional identification offered by cardholder.		n 1	(see 6.5.4 and Clause A.2)			49-71
Additional response data	Other data required in a response, e.g. a telephone number, printer capabilities etc.	LLLLVAR	ansb..9999	(see 6.2.1, 6.2.2 and 6.5.3)	44		X
Address verification result code	Code which defines the result from the address verification process		an 1	(see 6.5.4 and Clause A.19)			49-72
Airline amount original invoice	Amount of the original invoice. Used to identify the original amount on a refund transaction.		n 12	(see 6.2.3 and 6.5.6.4)			104-74
Airline amount total fare	The total airline ticket amount.		n 12	(see 6.2.3 and 6.5.6.4)			104-74
Airline amount total fees	The total fees associated with an airline ticket.		n 12	(see 6.2.3 and 6.5.6.4)			104-74
Airline amount total taxes	The total taxes associated with an airline ticket.		n 12	(see 6.2.3 and 6.5.6.4)			104-74
Airline carrier name	Name of airline carrier as defined by ATPCO	LLVAR	an..19	(see 6.2.1, 6.5.6.4 and Bibliography)			104-74
Airline customer reference	Cardholder supplied reference number.	LLVAR	ans..20	(see 6.2.1 and 6.5.6.4)			104-74
Airline date ticket issue	Date on which the airline ticket was issued.	CCYYMMDD	n 8	(see 6.5.6.4)			104-74
Airline invoice number	Invoice number as supplied by airline.		an 6	(see 6.5.6.4)			104-74

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Airline original currency code	Currency code of the original transaction. Used to identify the original currency in a refund transaction (in accordance with ISO 4217).		n 3	(see 6.5.6.4)			104-74
Airline passenger name	Name of airline passenger.	LLVAR	ans..29	(see 6.2.1 and 6.5.6.4)			104-74
Airline plan number	Plan number as supplied by airline.		an 2	(see 6.5.6.4)			104-74
Airline ticket agency name	Name of ticket agency which sold the airline ticket.	LLVAR	an..25	(see 6.2.1 and 6.5.6.4)			104-74
Airline ticket issue address	Address at which the airline ticket was issued.	LLVAR	ans..16	(see 6.2.1 and 6.5.6.4)			104-74
Airline ticket number	Ticket number as supplied by airline.	LLVAR	an..15	(see 6.2.1 and 6.5.6.4)			104-74
Airline travel agency code	Code of travel agency which sold airline ticket as defined by ATPCO.		an 8	(see 6.5.6.4 and Bibliography)			104-74
Amount additional amounts	Amount contained in *Amounts additional*.		xn 17	(see 6.2.3 and 6.4.14)		54	
Amount cardholder billing	Amount billed to the cardholder in the currency of the cardholder account exclusive of cardholder billing fees.		n 16	(see 6.2.3 and 6.4.4)	6	X	
Amount cardholder billing fee	Fee to be billed to the cardholder by the card issuing institution in the same currency as *Amount cardholder billing*.		n 12	(see 6.2.3 and 6.4.5)	8	X	
Amount fee	Amount of the fee within the *Fee type code*. Contained in *Amounts fees*.		xn 13	(see 6.2.3 and 6.4.13)		46	
Amount fee total	The sum amount of all fees of the fee type specified. Contained in *Reconciliation fee amounts credit* and *Reconciliation fee amounts debit*.		n 12	(see 6.2.3 and 6.4.23)		109 110	
Amount net reconciliation	The net value of all gross amounts.		xn 21	(see 6.2.3 and 6.4.22)	97	X	
Amount reconciliation	Funds to be transferred between the acquirer and card issuer equal to the *Amount transaction* in the currency of reconciliation.		n 16	(see 6.2.3 and 6.4.3)	5	X	
Amount reconciliation fee	Fee to be transferred between the acquirer and card issuer equal to the *Amount fee* in the currency of reconciliation. Contained in the *Amounts fees* data element.		xn 13	(see 6.2.3 and 6.4.13)		46	
Amount transaction	Funds requested by the cardholder in the local currency of the acquirer or source location of the transaction, exclusive of *Amounts fees*.		n 16	(see 6.2.3 and 6.4.2)	4	X	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Amount type additional amounts	Identifies the kind of amount contained in *Amounts additional*.		an 2	(see 6.2.3, 6.4.14 and Clause A.4)		54	
Amounts additional	Information on up to six amounts and related account data for which specific data elements have not been defined.	LLLVAR	ans..126	(see 6.2.1, 6.2.3 and 6.4.14)	54	X	
Amounts fees	Fees associated with this transaction.	LLLVAR	ans..216	(see 6.2.1, 6.2.3 and 6.4.13)	46	X	
Amounts original	The amount data elements from the original transaction.		n 32	(see 6.2.3 and 6.4.11)	30	X	
Amounts original fees	The original *Amounts fees* necessary to perform a partial reversal, partial chargeback or partial approval or to replace or supplement a previously authorised transaction.	LLLVAR	ans..216	(see 6.2.1, 6.2.3 and 6.4.16)	66	X	
Approval code	Code assigned by the authorizing institution indicating approval.		anp 6		38		
Approval code length	Maximum length of the approval code which the acquirer may accommodate. The card issuer or agent shall limit the approval code to this length.		n 1	(see 6.4.10)		27	
Authentication code	Used in authentication of a party, e.g. a cardholder. If more than one authentication code is present they shall be sent in the exact order received from the certificate processor.	Tag 80	ansb..50	(see 6.2.1, 6.2.2, 6.2.7, and 6.5.1)			34-72
Authorization life cycle code	A value in calendar days, hours or minutes which defines the time period for which the acquirer is requesting guarantee of funds, or that the card issuer shall guarantee funds for a financial presentment which may follow.		n 3	(see Clause A.5)	57		
Authorizations number	The sum number of all authorization transactions.		n 10	(see 6.4.21)		75	
Authorizations reversal number	The sum number of all reversal transactions processed where the message type identifier in the original data elements indicated an authorization transaction (1xx).		n 10	(see 6.4.21)		75	
Authorizing agent institution identification code	Code identifying the authorizing agent institution.	LLVAR	n..11	(see 6.2.1 and 6.2.5)	58		
Auto amount adjusted	Amount of miscellaneous charges incurred after the vehicle was rented, e.g. extra hours.		n 12	(see 6.2.3 and 6.5.6.5)			104-76
Auto amount adjusted indicator code	Indicates the type of charges provided in *Auto amount adjusted*.		as 1	(see 6.5.6.5 and Clause A.3)			104-76

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Auto amount vehicle insurance	Amount of vehicle insurance purchased as part of the vehicle rental agreement.		n 12	(see 6.2.3 and 6.5.6.5)			104-76
Auto customer service toll-free phone number	Customer service number that the cardholder may call to resolve questions or disputes.		ans 16	(see 6.5.6.5)			104-76
Auto distance unit of measure	Unit of measure of distance travelled.	K = kilometres M = miles	a 1	(see 6.5.6.5)			104-76
Auto maximum free miles/ kilometres	The number of free miles or kilometres allowed to a customer for the duration of the vehicle rental agreement.		n 4	(see 6.5.6.5)			104-76
Auto odometer reading	Reading of total distance travelled by vehicle.		n 8	(see 6.5.6.5)			104-76
Auto program code	Code allocated by the acquirer that identifies special circumstances, e.g. frequent renter or “no show”.		ans 2	(see 6.5.6.5)			104-76
Auto rental address	Address from where automobile was rented.	LLVAR	ans..26	(see 6.2.1 and 6.5.6.5)			104-76
Auto rental agreement reference	Reference number on auto rental agreement form.	LLVAR	ans..25	(see 6.2.1 and 6.5.6.5)			104-76
Auto rental city	City in which the automobile was rented.	LLVAR	ans..18	(see 6.2.1 and 6.5.6.5)			104-76
Auto rental class identifier	Classification defined by the acquirer of the vehicle rented, e.g. midsize, luxury.		ans 4	(see 6.5.6.5)			104-76
Auto rental country	Country in which the automobile was rented (in accordance with ISO 3166).		ans 3	(see 6.5.6.5)			104-76
Auto rental date	Date from which auto rental starts.	CCYYMMDD	n 8	(see 6.5.6.5)			104-76
Auto rental distance	Distance travelled during rental period (see *Auto distance unit of measure*).		n 5	(see 6.5.6.5)			104-76
Auto rental location identifier	Agency code, phone number, or other abbreviation used to identify the location from which the automobile was rented.		ans 10	(see 6.5.6.5)			104-76
Auto rental rate	Rental rate charged for the vehicle.		n 12	(see 6.5.6.5)			104-76
Auto rental rate time period	Indicates the time period to which the auto rental rate applies, e.g. daily, weekly etc.	D = daily W = weekly M = monthly Space = unknown	as 1	(see 6.5.6.5)			104-76
Auto rental state/province	State or province within the country in which the automobile was rented.		ans 3	(see 6.5.6.5)			104-76
Auto rental time	Time from which auto rental period starts.	HHMM	n 4	(see 6.5.6.5)			104-76
Auto renter name	Name of the person making the vehicle rental agreement.	LLVAR	ans..29	(see 6.2.1 and 6.5.6.5)			104-76

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Auto return address	Address to which the automobile was/will be returned.	LLVAR	ans..26	(see 6.2.1 and 6.5.6.5)			104-76
Auto return city	City to which the automobile was/will be returned.	LLVAR	ans..18	(see 6.2.1 and 6.5.6.5)			104-76
Auto return country	Country to which the automobile was/will be returned (in accordance with ISO 3166).		ans 3	(see 6.5.6.5)			104-76
Auto return date	Date on which automobile was/will be returned.	CCYYMMDD	n 8	(see 6.5.6.5)			104-76
Auto return location identifier	Agency code, phone number, or other abbreviation used to identify the location to which the automobile was/will be returned.		ans 10	(see 6.5.6.5)			104-76
Auto return state/province	State or province within the country to which the automobile was/will be returned.		ans 3	(see 6.5.6.5)			104-76
Auto return time	Time by which automobile was/will be returned.	HHMM	n 4	(see 6.5.6.5)			104-76
Auto vehicle insurance indicator	Indicates whether the customer purchased vehicle insurance as part of the vehicle rental agreement.	Y = yes N = No Space = unknown	as 1	(see 6.5.6.5)			104-76
Auto vehicle registration number	Registration number of rented or fleet automobile.		an 17	(see 6.5.6.5)			104-76
Batch/file transfer acknowledg-ment code	Indicates whether an acknowledgement message is required for a notification or instruction message submitted via batch or file transfer.		an 1	(see 6.4.17 and Clause A.6)		68	
Batch/file transfer control data	The name and number of messages in the current batch or file. Part of batch/file transfer.		ans 40	(see 6.4.18)	69	X	
Batch/file transfer file identification	The unique identifier assigned to each batch or file in the current batch or file transfer.		ans 32	(see 6.4.18)		69	
Batch/file transfer message control	Identifies the message number of the individual message and indicates whether an acknowledgement is required. Used in the management of file and batch transfer.		an 9	(see 6.4.17)	68	X	
Batch/file transfer message count	The number of messages to be sent in the batch or file.		n 8	(see 6.4.18)		69	
Batch/file transfer message sequence number	Unique sequence number assigned to a notification or instruction message that is sent via batch or file transfer.		n 8	(see 6.4.17)		68	
Card acceptor additional address information	Additional information used when card acceptor street address is insufficient.	Tag 81	an..256	(see 6.2.7 and 6.5.2)			43-71

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Card acceptor additional contact information	Additional information used to facilitate contact with the card acceptor, e.g. sales agent name, dispute manager name etc.	LLVAR	ans..30	(see 6.2.1 and 6.5.2)			43-71
Card acceptor certificate serial number	Value assigned to a card acceptor certificate issued by the acquirer's certificate authority.	LLVAR	b..16	(see 6.2.1, 6.2.2 and 6.5.1)			34-72
Card acceptor city	The city of the card acceptor, allocated by the acquirer, sufficient to allow the cardholder to recognize the location from his statement.	LLVAR	ans..50	(see 6.2.1 and 6.5.2)			43-71
Card acceptor country code	The code of the country, allocated by the acquirer, to indicate the country where the card acceptor is located (in accordance with ISO 3166).		a 3	(see 6.5.2)			43-71
Card acceptor customer service phone number	Phone number to be used to contact the card acceptor to resolve questions or disputes related to the transaction.		ans 16	(see 6.5.2)			43-71
Card acceptor display data	Card issuer data to be displayed on the POS for the card acceptor.	LLVAR	ans.. 99	(see 6.2.1 and 6.5.3)			44-71
Card acceptor display data length	Number of characters of data from a card issuer that can be displayed on the POS for the card acceptor.		n 3	(see 6.4.10)		27	
Card acceptor e-mail address	The electronic mail identifier of the card acceptor, sufficient to allow the cardholder to recognize the location from his statement.	LLVAR	ans..99	(see 6.2.1 and 6.5.2)			43-71
Card acceptor identification code	Code identifying the card acceptor.	LLVAR	ans..35	(see 6.2.1)	42		
Card acceptor internet URL	The primary internet universal resource locator (URL) of the card acceptor, sufficient to allow the cardholder to recognize the location from his statement.	LLLVAR	ans..255	(see 6.2.1 and 6.5.2)			43-71
Card acceptor name	The name of the card acceptor as known to the cardholder.	LLVAR	ans..50	(see 6.2.1 and 6.5.2)			43-71
Card acceptor name/location	The name and location of the card acceptor as known to the cardholder.	LLLLVAR	ansb..9999	(see 6.2.1, 6.2.2, 6.2.7 and 6.5.2)	43		X
Card acceptor phone number	Phone number of the card acceptor at the location of the original transaction.		ans 16	(see 6.5.2)			43-71
Card acceptor postal code	Code allocated by postal authority of the card acceptor to identify its physical location.		ans 10	(see 6.5.2)			43-71
Card acceptor receipt data	Card issuer data to be printed on the POS card acceptor receipt.	LLVAR	ans..99	(see 6.2.1 and 6.5.3)			44-71
Card acceptor receipt data length	Number of characters of data from a card issuer that can be printed on a POS receipt for the card acceptor.		n 3	(see 6.4.10)		27	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Card acceptor state province or region code	State, province, or region code allocated by the acquirer to indicate the physical location of the card acceptor.		ans 3	(see 6.5.2)			43-71
Card acceptor street address	The address of the card acceptor, allocated by the acquirer, sufficient to allow the cardholder to recognize the location from his statement.	LLVAR	ans..99	(see 6.2.1 and 6.5.2)			43-71
Card acceptor terminal identification	Unique code identifying a terminal at the card acceptor location.		ans 16		41		
Card capture capability	Indicates if the card can be captured.		a 1	(see 6.4.10)		27	
Card issuer reference data	Data supplied by a card issuer in an authorization response message, financial presentment response message, or in a chargeback transaction that the acquirer may be required to be provided in subsequent transactions.	LLVAR	ans..99	(see 6.2.1)	95		
Card issuer telephone number	Contact telephone number for use by the acquirer and/or card acceptor if the card issuer wishes to make voice contact		ans 16	(see 6.5.3)			44-71
Card reading method used at POS	A series of code values that indicate which of the card reading capabilities of the POS were used for this transaction.		b 4	(see 6.2.2, 6.4.9 and Clause A.16)		22	
Card sequence number	A number distinguishing between separate cards with the same primary account number.		n 3		23		
Card verification data	A number that is only printed on the card which is not included in any other technology e.g. magnetic stripe or ICC.		n 4	(see 6.5.4)			49-71
Cardholder billing address compressed	Numeric and postcode elements only of the cardholder/delivery address		ans 16	(see 6.5.4)			49-71
Cardholder billing postal code	Code allocated by postal authority		ans 10	(see 6.5.4)			49--71
Cardholder billing street address	Street address of cardholder		ans 40	(see 6.5.4)			49-71
Cardholder certificate serial number	Value assigned to a cardholder certificate issued by the card issuer's certificate authority.	LLVAR	b..16	(see 6.2.1, 6.2.2 and 6.5.1)			34-72
Cardholder display data	Card issuer data to be displayed on the POS for the cardholder.	LLVAR	ans..99	(see 6.2.1 and 6.5.3)			44-71
Cardholder display data length	Number of characters of data from a card issuer that can be displayed on the POS for the cardholder.		n 3	(see 6.4.10)		27	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Cardholder receipt data	Card issuer data to be printed on the POS cardholder receipt.	LLVAR	ans..99	(see 6.2.1 and 6.5.3)			44-71
Cardholder receipt data length	Number of characters of data from a card issuer that can be printed on a POS receipt for the cardholder.		n 3	(see 6.4.10)		27	
Cardholder verification method used at POS	A series of code values that indicate the POS capabilities of the POS actually used to identify the cardholder.		b 4	(see 6.2.2, 6.4.9 and Clause A.16)		22	
Conversion rate cardholder billing	The factor used in the conversion from transaction to cardholder billing amount. The *Amount transaction* is multiplied by *Conversion rate cardholder billing* to determine *Amount cardholder billing*.		n 8	(see 6.2.4)	10		
Conversion rate fee	The factor used in the conversion from fee amount to reconciliation fee amount. The *Amount fee* is multiplied by *Conversion rate fee* to determine the *Amount reconciliation fee*. Contained in *Amounts fees*.		n 8	(see 6.2.4 and 6.4.13)		46	
Conversion rate reconciliation	The factor used in the conversion from transaction to reconciliation amount. The *Amount transaction* is multiplied by *Conversion rate reconciliation* to determine the *Amount reconciliation*.		n 8	(see 6.2.4)	9		
Country code acquiring institution	The code of the country where the acquiring institution is located (in accordance with ISO 3166).		n 3		19		
Country code primary account number (PAN)	The code of the country where the card issuing institution is located (in accordance with ISO 3166).		n 3		20		
Credits amount	The sum amount of *Amount transaction* in all financial presentment transactions exclusive of any fees where positions 1-2 of the *Processing code* in the financial presentment transaction indicated a credit (20-29).		n 16	(see 6.4.20)		74	
Credits chargeback amount	The sum amount of *Amount transaction* in all chargeback transactions exclusive of any fees where positions 1-2 of the *Processing code* in the chargeback transaction indicated a debit (00-19).		n 16	(see 6.4.20)		74	
Credits chargeback number	The sum number of all chargeback transactions where positions 1-2 of the *Processing code* in the chargeback transaction indicated a debit (00-19).		n 10	(see 6.4.20)		74	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Credits number	The sum number of all financial presentment transactions where positions 1-2 of the *Processing code* in the financial presentment transaction indicated a credit (20-29).		n 10	(see 6.4.20)		74	
Credits reversal amount	The sum amount of *Amount transaction* of all reversal transactions exclusive of any fees where positions 1-2 of the *Processing code* in the reversal transaction indicated a debit (00-19).		n 16	(see 6.4.20)		74	
Credits reversal number	The sum number of all reversal transactions where positions 1-2 of the *Processing code* in the reversal transaction indicated a debit (00-19).		n 10	(see 6.4.20)		74	
Currency code amount additional amounts	Code defining the currency of the amount contained in *Amount additional amounts* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.14)		54	
Currency code amount cardholder billing	Code defining the currency of the amount contained in *Amount cardholder billing* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.4)		6	
Currency code amount cardholder billing fee	Code defining the currency of the amount contained in *Amount cardholder billing fee* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.5)		8	
Currency code amount fee	Code defining the currency of the amount contained in *Amount fee* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.13)		46	
Currency code amount net reconciliation	Code defining the currency of the amount contained in *Amount net reconciliation* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.22)		97	
Currency code amount reconciliation	Code defining the currency of the amount contained in *Amount reconciliation* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.3)		5	
Currency code amount reconciliation fee	Code defining the currency of the amount contained in *Reconciliation fee* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.13)		46	
Currency code amount transaction	Code defining the currency of the amount contained in *Amount transaction* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.2)		4	
Currency code original amount fee	Code defining the currency of the amount contained in *Original amount fee* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.16)		66	
Currency code original amount reconciliation	Code defining the currency of the amount contained in *Original amount reconciliation* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.11)		30	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Currency code original amount reconciliation fee	Code defining the currency of the amount contained in *Original amount reconciliation fee* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.16)		66	
Currency code original amount transaction	Code defining the currency of the amount contained in *Original amount transaction* (in accordance with ISO 4217).		n 3	(see 6.2.3 and 6.4.11)		30	
Currency minor unit amount additional amounts	Currency minor unit of *Amount additional amounts*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.14)		54	
Currency minor unit amount cardholder billing	Currency minor unit of *Amount cardholder billing*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.4)		6	
Currency minor unit amount cardholder billing fee	Currency minor unit of *Amount cardholder billing fee*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.5)		8	
Currency minor unit amount fee	Currency minor unit of *Amount fee*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.13)		46	
Currency minor unit amount net reconciliation	Currency minor unit of *Amount net reconciliation*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.22)		97	
Currency minor unit amount reconciliation	Currency minor unit of *Amount reconciliation*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.3)		5	
Currency minor unit amount reconciliation fee	Currency minor unit of *Amount reconciliation fee*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.13)		46	
Currency minor unit amount transaction	Currency minor unit of *Amount transaction*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.2)		4	
Currency minor unit original amount fee	Currency minor unit of *Original amount fee*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.16)		66	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Currency minor unit original amount reconciliation	Currency minor unit of *Original amount reconciliation*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.11)		30	
Currency minor unit original amount reconciliation fee	Currency minor unit of *Original amount reconciliation fee*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.16)		66	
Currency minor unit original amount transaction	Currency minor unit of *Original amount transaction*. Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit.		n 1	(see 6.2.3 and 6.4.11)		30	
Data element in error	Identifies the data element number in error. Contained in *Message error indicator*.		n 3	(see 6.4.7)		18	
Data record	Other data required to be passed to support an administrative or file action message.	LLLLVAR	ansb..9999	(see 6.2.1 and 6.2.2)	72		
Data sub-element in error	Identifies the part within a constructed data element that is in error. Contained in *Message error indicator*.		n 2	(see 6.4.7)		18	
Dataset bit or tag in error	Identifies the bit or tag within a dataset identifier that is in error. Contained in M*essage error indicator*.		b 2	(see 6.2.2 and 6.4.7)		18	
Dataset identifier in error	Identifies the dataset identifier within a composite data element that is in error. Contained in *Message error indicator*.		b 1	(see 6.2.2 and 6.4.7)		18	
Date action	A date for a future action or a specific date such as a birth date.	CCYYMMDD	n 8		73		
Date and time local transaction	The local year, month, day and time the transaction takes place at the card acceptor location in authorization messages and financial presentment messages.	CCYYMMDDhhmmss	n 14	(see 6.4.6)	12	X	
Date and time transmission	Date and time the message initiator sends this message. To be expressed in Co-ordinated Universal Time (UTC) (in accordance with ISO 8601), formerly known as Greenwich Mean Time (GMT).	MMDDhhmmss	n 10	(see 6.3.1)	7		
Date capture	The month and day the acquirer processed the transaction data.	MMDD	n 4		17		
Date conversion	The month and day the conversion rate is effective to convert the transaction amount from the original to reconciliation currency.	MMDD	n 4		16		

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Date effective	The year and month in which the card becomes effective.	CCYYMM	n 6		13		
Date expiration	The year and month after which the card expires.	YYMM	n 4		14		
Date local transaction	The local year, month and day of the transaction.	CCYYMMDD	n 8	(see 6.4.6)		12	
Date reconciliation	The year, month and day for which financial totals are reconciled between the acquirer and the card issuer.	CCYYMMDD	n 8		28		
Date settlement	The year, month and day for which funds shall be transferred between acquirer and card issuer.	CCYYMMDD	n 8		15		
Debits amount	The sum amount of *Amount transaction* in all financial presentment transactions exclusive of any fees where positions 1-2 of the *Processing code* in the financial presentment transaction indicated a debit (00-19).		n 16	(see 6.4.20)		74	
Debits chargeback amount	The sum amount of *Amount transaction* in all chargeback transactions exclusive of any fees where positions 1-2 of the *Processing code* in the chargeback transaction indicated a credit (20-29).		n 16	(see 6.4.20)		74	
Debits chargeback number	The sum number of all chargeback transactions where positions 1-2 of the *Processing code* in the chargeback transaction indicated a credit (20-29).		n 10	(see 6.4.20)		74	
Debits number	The sum number of all financial presentment transactions where positions 1-2 of the *Processing code* in the financial presentment transaction indicated a debit (00-19).		n 10	(see 6.4.20)		74	
Debits reversal amount	The sum amount of *Amount transaction* of all reversal transactions exclusive of any fees where positions 1-2 of the *Processing code* in the reversal transaction indicated a credit (20-29).		n 16	(see 6.4.20)		74	
Debits reversal number	The sum number of all reversal transactions where positions 1-2 of the *Processing code* in the reversal transaction indicated a credit (20-29).		n 10	(see 6.4.20)		74	
Electronic commerce data	The data needed to support the processing and prove the identity of the requester (usually a cardholder) using public key cryptography and/or digital certificates.	LLLLVAR	b..9999	(see 6.2.1, 6.2.2 and 6.5.1)	34		X

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Error severity code	Indicates whether or not the error condition caused the receiver to reject the message. Contained in *Message error indicator*.		n 2	(see 6.4.7)		18	
Extended payment data	Number of months that the cardholder prefers to pay for this item if permitted by the card issuer.		n 2		67		
Fee collections number	The sum number of all fee collection transactions.		n 10	(see 6.4.21)		75	
Fee type code	Code indicating the type of fee. Contained in the data elements *Amounts fees*, *Reconciliation fee amounts credit* and *Reconciliation fee amounts debit*.		n 2	(see 6.4.13, 6.4.23 and Clause A.8)		46 109 110	
File name	The actual or abbreviated name of the file being accessed.	LLVAR	ans..99	(see 6.2.1)	101		
File transfer description data	The total length and the number of elementary data records of the file, used in the management of file transfer.		n 18	(see 6.4.19)	70	X	
File transfer elementary data record count	The total number of elementary data records in the file to be transferred.		n 6	(see 6.4.19)		70	
File transfer file size	The total length in bytes of the file to be transferred.		n 6	(see 6.4.19)		70	
File transfer remaining elementary data record count	The remaining number of elementary data records to be transmitted in the current file transfer.		n 6	(see 6.4.19)		70	
Fleet amount bottom line discount	Discount amount on total purchase.		n 12	(see 6.2.3 and 6.5.6.7)			104-78
Fleet driver number/other identification number	The number assigned to the driver by the employer for purposes of tracking fuel purchases.	LLVAR	n..17	(see 6.2.1 and 6.5.6.7)			104-78
Fleet line item value excluding tax	Total line amount excluding tax.		n 12	(see 6.2.3 and 6.5.6.7)			104-78
Fleet line item value including tax	Total line amount including tax.		n 12	(see 6.2.3 and 6.5.6.7)			104-78
Fleet motor fuel oil company brand name	Acquirer's abbreviation for the brand name of the card acceptor's oil company.		n 4	(see 6.5.6.7)			104-78
Fleet motor fuel prompt code	Contains a code read from a card that indicates terminal prompts that occur at the point of service.		n 1	(see 6.5.6.7 and Clause A.13)			104-78
Fleet motor fuel service type code	Type of service received at the acceptor location.		ans 1	(see 6.5.6.7 and Clause A.14)			104-78

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Fleet odometer reading	Reading of total distance travelled by vehicle.		n 8	(see 6.5.6.7)			104-78
Fleet product code	Code which identifies a specific product as supplied by the card acceptor.	LLVAR	an..15	(see 6.2.1 and 6.5.6.7)			104-78
Fleet product quantity	Quantity of goods purchased.	LLVAR	n..12	(see 6.2.1 and 6.5.6.7)			104-78
Fleet quantity minor unit	Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit of *Fleet product quantity*.		n 1	(see 6.5.6.7)			104-78
Fleet total tax amount	Total amount of tax on the transaction.		n 12	(see 6.2.3 and 6.5.6.7)			104-78
Fleet unit of measure	Unit of measure of quantity purchased as defined by card acceptor.	LLVAR	ans..12	(see 6.2.1 and 6.5.6.7)			104-78
Fleet unit price excluding tax	Price per unit net of tax.		n 12	(see 6.2.1 and 6.5.6.7)			104-78
Fleet unit price including tax	Price per unit inclusive of tax		n 12	(see 6.2.3 and 6.5.6.7)			104-78
Fleet vehicle registration number	Registration number of rented or fleet automobile.		an 17	(see 6.5.6.7)			104-78
Forwarding institution identification code	Code identifying the forwarding institution.	LLVAR	n..11	(see 6.2.1 and 6.2.5)	33		
Free-form description data	Transaction data related to new programs and services, content and format are based on bilateral agreement.	LLLVAR	ans..999	(see 6.2.1 and 6.5.6.2)			104-71
Function code	Code indicating the specific purpose of the message within its message class.		n 3	(see Clause A.9)	24		
ICC scripts data length	Number of characters of data from a card issuer that can be returned to the ICC at the POS.		n 3	(see 6.4.10)		27	
Inquiries number	The sum number of all authorization transactions processed where positions 1-2 of the *Processing code* in the authorization transaction indicated an inquiry (30-39).		n 10	(see 6.4.21)		75	
Inquiries reversal number	The sum number of all reversal transactions processed where positions 1-2 of the *Processing code* in the reversal transaction indicated an inquiry (30-39).		n 10	(see 6.4.21)		75	
ICC system related data	Contains data related to integrated circuit card systems.	LLLLVAR	b..9999	(see 6.2.1, 6.2.2 and 6.5.5)	55		X

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Invoice alternate tax identifier	The card acceptors tax identification number for the *Invoice amount alternate tax*.		ans 15	(see 6.5.6.3)			104-72
Invoice amount alternate tax	Amount of the alternate tax on the purchase.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Invoice amount alternate tax indicator	Indicates whether alternate tax amount is included in the total purchase amount.	Y = yes N = no Space = unknown	as 1	(see 6.5.6.3)			104-72
Invoice amount bottom line discount	Discount amount on total purchase.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Invoice amount duty	Duty on the total purchase amount.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Invoice amount freight excluding tax	Amount charged for freight/delivery excluding any tax.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Invoice amount freight including tax	Amount charged for freight/delivery including any tax.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Invoice amount total tax	Total amount of tax on the transaction.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Invoice card acceptor customer reference number	Card acceptors reference number for corporate customer.	LLVAR	an..17	(see 6.2.1 and 6.5.6.3)			104-72
Invoice card acceptor invoice reference number	Reference number on card acceptor invoice.	LLVAR	an..12	(see 6.2.1 and 6.5.6.3)			104-72
Invoice card acceptor order number	Order number allocated by the card acceptor.	LLVAR	an..15	(see 6.2.1 and 6.5.6.3)			104-72
Invoice card acceptor tax reference number	Registered tax reference number of card acceptor.	LLVAR	an..20	(see 6.2.1 and 6.5.6.3)			104-72
Invoice card acceptor type	A code allocated by the acquirer, describing various classifications of business ownership characteristics, e.g. small business.		ans 4	(see 6.5.6.3)			104-72
Invoice cardholder order reference number	Reference number given by cardholder.	LLVAR	an..22	(see 6.2.1 and 6.5.6.3)			104-72
Invoice cardholder's tax reference number	Tax reference number of cardholder's company.	LLVAR	an..13	(see 6.2.1 and 6.5.6.3)			104-72
Invoice cost centre	Cardholder's internal accounting cost centre code.	LLVAR	a..20	(see 6.2.1 and 6.5.6.3)			104-72

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Invoice customer reference	Cardholder supplied reference number.	LLVAR	ans..20	(see 6.2.1 and 6.5.6.3)			104-72
Invoice destination country code	Country of destination for delivery of goods (in accordance with ISO 3166).		an 3	(see 6.5.6.3)			104-72
Invoice destination postal code	Postal code for delivery of goods.	LLVAR	an..10	(see 6.2.1 and 6.5.6.3)			104-72
Invoice destination state/province code	State or province within the country where the purchased goods will be delivered.		ans 3	(see 6.5.6.3)			104-72
Invoice freight tax rate	Rate of tax to be applied to *Invoice freight amount excluding tax* to calculate the tax on the freight charges.		n 4	(see 6.5.6.3)			104-72
Invoice order date	Date when order was placed.	CCYYMMDD	n 8	(see 6.5.6.3)			104-72
Invoice original invoice number	Invoice number of the original invoice. Used to identify the original invoice on a refund transaction.	LLVAR	an..15	(see 6.2.1 and 6.5.6.3)			104-72
Invoice ship from postal code	Postal code from which goods are to be shipped.	LLVAR	an..10	(see 6.2.1 and 6.5.6.3)			104-72
Invoice tax indicator	Indicator of whether tax is included.	0 = Tax not included 1 = Tax included	n 1	(see 6.5.6.3)			104-72
Invoice value excluding tax	Invoice total, net of tax.		n 12	(see 6.2.3 and 6.5.6.3)			104-72
Julian processing date	Date acquirer processed the original transaction, e.g. first presentment.	YDDD	n 4	(see 6.4.12)		31	
Key management data	Contains data related to key management (in accordance with ISO 13492).	LLLVAR	b..999	(see 6.2.1 and 6.2.2)	96		
Life cycle authentication token	A code calculated using an algorithm against key transaction data elements that are common to both authorization messages and financial presentment messages.		n 4	(see 6.4.8)		21	
Life cycle support indicator	Indicates the point in the transaction life cycle at which *Life cycle trace identifier* was assigned.		ans 1	(see 6.4.8)		21	
Life cycle trace identifier	Unique transaction identifier.		ans 15	(see 6.4.8)		21	
Life cycle transaction sequence number	Number used with *Life cycle trace identifier* to uniquely identify when multiple financial presentments are generated from a single authorization transaction.		n 2	(see 6.4.8)		21	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Line item amount discount	Amount of discount per line if unit price is before discount.		n 12	(see 6.2.3 and 6.5.6.3)			104-73
Line item amount tax	Tax amount for the line item.		n 12	(see 6.2.3 and 6.5.6.3)			104-73
Line item commodity code	Code of goods purchased. Defined by national tax authorities.	LLVAR	an..16	(see 6.2.1 and 6.5.6.3)			104-73
Line item dataset sequence number	Identifies the sequence in which multiple datasets with the same dataset identifier should be processed.		b 2	(see 6.2.2 and 6.5.6.3)			104-73
Line item descriptor	Description of item purchased.	LLVAR	an..40	(see 6.2.1 and 6.5.6.3)			104-73
Line item discount indicator	Indicates whether the line item amount is discounted.	Y = yes N = no Space = unknown	as 1	(see 6.5.6.3)			104-73
Line item discount rate	Discount rate for the line item.		ans 5	(see 6.5.6.3)			104-73
Line item product code	Code which identifies a specific product as supplied by the card acceptor.	LLVAR	an..15	(see 6.2.1 and 6.5.6.3)			104-73
Line item product quantity	Quantity of goods purchased.	LLVAR	n..12	(see 6.2.1 and 6.5.6.3)			104-73
Line item quantity minor unit	Indicates the number of places the decimal point shall be moved to the left, starting from the rightmost numeric digit of *Line item product quantity*.		n 1	(see 6.5.6.3)			104-73
Line item tax rate	Rate of tax to be applied to calculate the tax amount.		n 5	(see 6.5.6.3)			104-73
Line item tax type	Code, defined by the acquirer, identifying the type of tax applied to the line item.		ans 4	(see 6.5.6.3)			104-73
Line item unit of measure	Unit of measure of quantity purchased as defined by card acceptor.	LLVAR	a..12	(see 6.2.1 and 6.5.6.3)			104-73
Line item unit price excluding tax	Price per unit net of tax.	LLVAR	n..12	(see 6.2.1 and 6.5.6.3)			104-73
Line item value debit/credit indicator	Indicates whether the line item value is a debit or a credit.	D = Debit C = Credit Space = unknown	as 1	(see 6.5.6.3)			104-73
Line item value excluding tax	Total line amount excluding tax.		n 12	(see 6.2.3 and 6.5.6.3)			104-73
Line item value including tax	Total line amount including tax.		n 12	(see 6.2.3 and 6.5.6.3)			104-73
Lodging amount bar/mini-bar	Total amount of bar and in-room “mini-bar” items charged to room.		n 12	(see 6.2.3 and 6.5.6.6)			104-77

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Lodging amount billing adjustment	Amount of any additional charges incurred after the cardholder's departure from the lodging facility.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount gift shop	Total amount of gift shop and speciality shop items charged to room.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount laundry/dry cleaning	Total amount of laundry and dry cleaning items charged to room.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount other services	The total amount of miscellaneous items/services charged to the room, not specified elsewhere.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount other services indicator	Indicates the type of charges provided in *Lodging amount other services*. Values provided by acquirer.		ans 3	(see 6.5.6.6)			104-77
Lodging amount phone charges	Total amount of phone calls charged to room.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount restaurant/ room service	Total amount of restaurant and/or room service food charged to room.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount room rate	Daily room charges exclusive of taxes and fees.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging amount room tax	Daily room tax amount.		n 12	(see 6.2.3 and 6.5.6.6)			104-77
Lodging customer service toll-free phone number	Customer service number that the cardholder may call to resolve questions or disputes.		ans 16	(see 6.5.6.6)			104-77
Lodging date arrival	Date on which the cardholder checked into the lodging facility.	CCYYMMDD	n 8	(see 6.5.6.6)			104-77
Lodging date departure	Date on which the cardholder checked out of the lodging facility.	CCYYMMDD	n 8	(see 6.5.6.6)			104-77
Lodging facility phone number	Local phone number of the lodging facility at which the cardholder stayed.		ans 16	(see 6.5.6.6)			104-77
Lodging folio number	Lodging facility's internal invoice or billing identification reference number.		ans 10	(see 6.5.6.6)			104-77
Lodging program code	Code allocated by the acquirer that identifies special circumstances, e.g. frequent renter or "no show".		ans 2	(see 6.5.6.6)			104-77
Luhn check digit	Check sum on the previous 22 digits of *Acquirer reference number* calculated in accordance with ISO 7812-1.		n 1	(see 6.4.12)		31	
Magnetic stripe track 3 rewrite capability	Indicates if the POS can rewrite Track 3.		a 1	(see 6.4.10.1)		27	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Merchant category code	Code classifying the type of business being done by the card acceptor for this transaction (in accordance with ISO 18245).		n 4		26		
Message authentication code (MAC) field	Used to validate the source and the text of the message between the sender and receiver (in accordance with ISO 9807).		b 4	(see 6.2.2 and 6.3.3)	64 or 128		
Message error code	Code identifying a specific error condition. Contained in *Message error indicator*.		n 4	(see 6.4.7 and Clause A.10)		18	
Message error indicator	Identifies the location, severity and general description of data element errors in a message.	LLLVAR	ansb..140	(see 6.2.1, 6.2.2 and 6.4.7)	18	X	
Message reason code	Provides the receiver of a request, advice or notification message with the reason, or purpose, of that message. For original authorizations and financial presentments, it identifies why the type of message was sent, e.g. why an advice versus a request. For other messages it identifies states why this action was taken.		n 4	(see Clause A.11)	25		
Number fee total	The count of all fees of the fee type specified. Contained in the *Reconciliation fee amounts credit* and *Reconciliation fee amounts debit* data elements.		n 10	(see 6.4.23)		109 110	
Original acquiring institution identification code	The acquiring institution identification code of the original financial presentment. Contained in *Original data elements*.		n 11	(see 6.4.15)		56	
Original amount fee	The original amount of the fee in a reversal, chargeback or partial approval. Contained in *Amounts original fees*.		xn 13	(see 6.2.3 and 6.4.16)		66	
Original amount reconciliation	The original amount of the transaction expressed in the reconciliation currency. Contained in *Amounts original*.		n 16	(see 6.2.3 and 6.4.11)		30	
Original amount reconciliation fee	The original amount of the fee expressed in the reconciliation currency. Contained in *Amounts original fees*.		xn 13	(see 6.2.3 and 6.4.16)		66	
Original amount transaction	The original amount of the transaction. Contained in *Amounts original*.		n 16	(see 6.2.3 and 6.4.11)		30	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Original conversion rate fee	The factor used in the conversion from transaction to reconciliation fee amount. The *Original amount fee* is multiplied by *Original conversion rate fee* to determine *Original amount reconciliation fee*. Contained in *Amounts original fees*.		n 8	(see 6.2.3 and 6.4.16)		66	
Original data elements	The data elements contained in the original message.	LLVAR	n..41	(see 6.2.1 and 6.4.15)	56	X	
Original date and time local transaction	The local date and time of the original transaction. Contained in *Original data elements*.	CCYYMMDDhhmmss	n 14	(see 6.4.15)		56	
Original fee type code	Code used to indicate the type of fee. Contained in *Amounts original*.		n 2	(see 6.4.16 and Clause A.8)		66	
Original message type identifier	The message type identifier of the original transaction. Contained in *Original data elements*.		n 4	(see 6.4.15)		56	
Original system trace audit number	The system trace audit number of the original transaction. Contained in *Original data elements*.		n 12	(see 6.4.15)		56	
Payee	The third party beneficiary in a Financial Presentment where the *Processing code* indicates a payment (50-59).		ans 25		98		
Payments number	The sum number of all financial presentment transactions processed where positions 1-2 of the *Processing code* in the financial presentment transaction indicated a payment (50-59).		n 10	(see 6.4.21)		75	
Payments reversal number	The sum number of all reversal transactions processed where positions 1-2 of the *Processing code* in the reversal transaction indicated a payment (50-59).		n 10	(see 6.4.21)		75	
PIN data	Used to identify the cardholder at the point of service (in accordance with ISO 9564-1).		b 8	(see 6.2.2)	52		
PIN input length capability	The number of PIN digits that the point of service device can accept.		b 1	(see 6.2.2 and 6.4.10)		27	
POS capability	A series of codes intended to identify the capabilities of the POS.		anb 27	(see 6.2.2, 6.4.10 and Clause A.15)	27	X	
POS data code	A series of codes intended to identify how a transaction completed at the POS.		b 16	(see 6.2.2, 6.4.9 and Clause A.16)	22	X	
POS card reading capability	A series of code values which indicate the card reading capabilities of the POS.		b 4	(see 6.2.2 and 6.4.10)		27	
POS cardholder verification capability	A series of code values that indicate the POS capabilities available to identify the cardholder.		b 4	(see 6.2.2 and 6.4.10)		27	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
POS environment	A series of code values that indicate if the card acceptor were present and if not the type of environment in which the transaction took place.		b 4	(see 6.2.2, 6.4.9 and Clause A.16)		22	
PAN	A series of digits used to identify a customer account or relationship.	LLVAR	n..19	(see 6.2.1 and 6.2.5)	2		
Processing code	Code used to describe the effect of a transaction on the customer account and the accounts affected.		an 6	(see 6.4.1 and Clause A.17)	3	X	
Receiving institution identification code	Code identifying the receiving institution.	LLVAR	n..11	(see 6.2.1 and 6.2.5)	100		
Reconciliation data primary	Number and amount values required to complete the reconciliation of financial totals.		n 156	(see 6.4.20)	74	X	
Reconciliation data secondary	Additional count which may be utilized for reconciliation.		n 90	(see 6.4.21)	75	X	
Reconciliation fee amounts credit	The sum amount of *Amount fee* in all authorization, financial presentment, reversal and fee collection messages where the *Amount fee* "x" indicated a credit "C".	LLLVAR	ans..144	(see 6.2.1, 6.2.3 and 6.4.23)	109	X	
Reconciliation fee amounts debit	The sum amount of *Amount fee* in all authorization, financial presentment, reversal and fee collection messages where the *Amount fee* "x" indicated a debit "D".	LLLVAR	ans..144	(see 6.2.1, 6.2.3 and 6.4.23)	110	X	
Reconciliation indicator	A value used to allow reconciliation of time periods within a reconciliation date. The value is subject to bilateral agreement.		n 3		29		
Retrieval reference number	A reference supplied by the system retaining the original source information and used to assist in locating that information or a copy thereof.		anp 12		37		
Security characteristics	A series of codes that indicate the security characteristics applicable to a transaction.		b 4	(see 6.2.2, 6.4.9 and Clause A.16)		22	
Security related control information	Identifies security management information used in the current transaction or specifies security management information to be used in future transactions (in accordance with ISO 13492).	LLVAR	b..48	(see 6.2.1 and 6.2.2)	53		
Sequence number	Data supplied by acquirer.		n 11	(see 6.4.12)		31	
Service code	An identification of geographic/service availability (in accordance with ISO 7813).		n 3		40		

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Settlement institution identification code	Code identifying the settlement institution or its agent.	LLVAR	an..11	(see 6.2.1)	99		
Systems trace audit number	A number assigned by a transaction originator to assist in identifying a transaction uniquely. The trace number remains unchanged for all messages within a two-message exchange, e.g. request/repeat and response.		n 12		11		
Time local transaction	The local time of the transaction.	hhmmss	n 6	(see 6.4.6)		12	
Track 1 data	The information encoded on track 1 of the magnetic stripe as specified in ISO 7813, including field separators but excluding beginning and ending sentinels and longitudinal redundancy check characters as defined therein.	LLVAR	ans..76	(see 6.2.1)	45		
Track 2 data	The information encoded on track 2 of the magnetic stripe as specified in ISO 7813, excluding beginning and ending sentinels and longitudinal redundancy check characters as defined therein.	LLVAR	z..37	(see 6.2.1)	35		
Track 3 data	The information encoded on track 3 of the magnetic stripe as specified in ISO 4909, including field separators, but excluding beginning and ending sentinels and longitudinal redundancy check characters as defined therein.	LLLVAR	z..104	(see 6.2.1)	36		
Transaction destination institution identification code	Code identifying the institution that is the transaction destination.	LLVAR	n..11	(see 6.2.1 and 6.2.5)	93		
Transaction life cycle identification data	A unique identifier used to match transactions throughout their life cycle (for example, authorization to financial presentment, financial presentment to chargeback etc.) It shall contain the same value in all messages throughout a transaction's life cycle.		ans 22	(see 6.4.8)	21	X	
Transaction originator institution identification code	Code identifying the institution that is the transaction originator.	LLVAR	n..11	(see 6.2.1 and 6.2.5)	94		
Transaction specific data	Non financial data captured as part of a transaction.	LLLLVAR	ansb..9999	(see 6.2.1, 6.2.2 and 6.5.6)	104		X
Transaction type code	Code which indicates the type of transaction being undertaken. Used in conjunction with the *Account type code* as part of the *Processing code.*		an 2	(see 6.4.1 and Clause A.17.1)		3	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Transfers number	The sum number of all financial presentment transactions processed where positions 1-2 of the *Processing code* in the financial presentment transaction indicated a transfer (40-49).		n 10	(see 6.4.21)		75	
Transfers reversal number	The sum number of all reversal transactions processed where positions 1-2 of the *Processing code* in the reversal transaction indicated a transfer (40-49).		n 10	(see 6.4.21)		75	
Transport data	Contains data from the originator of the message that shall be returned unaltered in a response message.	LLLVAR	ans..999	(see 6.2.1)	59		
Transstain	A hash value calculated by applying a secure hash algorithm to the XID and card secret (a secret defined value known only to the cardholder and issuer of the cardholder certificate).		b 20	(see 6.2.2 and 6.5.1)			34-72
Trip leg amount departure tax	Tax payable by airline passenger on departure.		n 12	(see 6.2.3 and 6.5.6.4)			104-75
Trip leg amount fare	The trip leg airline ticket amount.		n 12	(see 6.2.3 and 6.5.6.4)			104-75
Trip leg amount fees	The fees associated with each trip leg.		n 12	(see 6.2.3 and 6.5.6.4)			104-75
Trip leg amount taxes	The total taxes associated with each trip leg.		n 12	(see 6.2.3 and 6.5.6.4)			104-75
Trip leg arrival time	Time of arrival for each trip leg.		n 4	(see 6.5.6.4)			104-75
Trip leg arrival time segment code	Indicates whether the arrival time is in the a.m. or the p.m.	A = a.m. P = p.m. space = unknown	as 1	(see 6.5.6.4)			104-75
Trip leg carrier code	Code of airline carrier as defined by ATPCO.		an 2	(see 6.5.6.4 and Bibliography)			104-75
Trip leg class of travel	Class of airline journey as defined by ATPCO.		an 2	(see 6.5.6.4 and Bibliography)			104-75
Trip leg conjunction ticket number	The ticket that contains additional coupons on an itinerary that is more than four trip legs.	LLVAR	an..15	(see 6.2.1 and 6.5.6.4)			104-75
Trip leg coupon number	Identifies the coupon associated with each trip leg.		ans 1	(see 6.5.6.4)			104-75
Trip leg dataset sequence number	Identifies the sequence in which multiple datasets with the same dataset identifier should be processed.		b 2	(see 6.2.2 and 6.5.6.4)			104-75
Trip leg date of travel	Date of departure of airline journey.	CCYYMMDD	n 8	(see 6.5.6.4)			104-75
Trip leg departure airport	Airport from which journey/leg departs as defined by ATPCO.		an 5	(see 6.5.6.4 and Bibliography)			104-75

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Trip leg departure time	Time of departure for each trip leg.		n 4	(see 6.5.6.4)			104-75
Trip leg departure time segment code	Indicates whether the departure time is in the a.m. or p.m.	A = a.m. P = p.m. Space = unknown	as 1	(see 6.5.6.4)			104-75
Trip leg destination code	Code of destination airport as defined by ATPCO.		an 5	(see 6.5.6.4 and Bibliography)			104-75
Trip leg endorsements/ restrictions	Agency-added or government required notations, or restrictions such as non-refundable, that are applicable to a trip leg.	LLVAR	ans..20	(see 6.2.1 and 6.5.6)			104-75
Trip leg exchange ticket number	The original airline ticket number replaced by a new ticket number.	LLVAR	an..15	(see 6.2.1 and 6.5.6.4)			104-75
Trip leg fare basis code	Basis for calculation of airline fare as defined by ATPCO.	LLVAR	an..15	(see 6.2.1, 6.5.6.4 and Bibliography)			104-75
Trip leg flight number	Number assigned to each trip leg by the operating or marketing air carrier.		ans 5	(see 6.5.6.4)			104-75
Trip leg number	Number of leg or stage of airline journey of a multi-flight booking.		n 2	(see 6.5.6.4)			104-75
Trip leg stop over code	Code of stop over airport during an airline journey as defined by ATPCO.		an 1	(see 6.5.6.4 and Bibliography)			104-75
User format identifier	Identifier applied by acquirer based on bilateral agreements.		n 1	(see 6.4.12)		31	
Value amount additional amounts	The additional amounts in the indicated currency.		n 12	(see 6.2.3 and 6.4.14)		54	
Value amount cardholder billing	The cardholder billing amount in the indicated currency.		n 12	(see 6.2.3 and 6.4.4)		6	
Value amount cardholder billing fee	The cardholder billing fee amount in the indicated currency.		n 8	(see 6.2.3 and 6.4.5)		8	
Value amount fee	The fee amount in the indicated currency.		n 8	(see 6.2.3 and 6.4.13)		46	
Value amount net reconciliation	The net reconciliation amount in the indicated currency.		xn 17	(see 6.2.3 and 6.4.22)		97	
Value amount reconciliation	The reconciliation amount in the indicated currency.		n 12	(see 6.2.3 and 6.4.3)		5	
Value amount reconciliation fee	The reconciliation fee amount in the indicated currency.		n 8	(see 6.2.3 and 6.4.13)		46	
Value amount transaction	The transaction amount in the indicated currency.		n 12	(see 6.2.3 and 6.4.2)		4	
Value original amount fee	The original fee amount in the indicated currency.		n 8	(see 6.2.3 and 6.4.16)		66	

Table 3 (*continued*)

Name	Description	Format	Representation	Notes	Bit	Cons.	Comp.
Value original amount reconciliation	The original reconciliation amount in the indicated currency.		n 12	(see 6.2.3 and 6.4.11)		30	
Value original amount reconciliation fee	The original reconciliation fee amount in the indicated currency.		n 8	(see 6.2.3 and 6.4.16)		66	
Value original amount transaction	The original transaction amount in the indicated currency.		n 12	(see 6.2.3 and 6.4.11)		30	
Verification data	Additional data required to support identification of the cardholder	LLLLVAR	ans..9999	(see 6.2.1 and 6.5.4)	49		X
XID	Value assigned to a transaction as a unique transaction identifier.		b 20	(see 6.2.2 and 6.5.1)			34-72

6.2 General requirements for data elements

6.2.1 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. The format shall be LLVAR. 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. The format shall be LLLVAR. 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. The format shall be LLLLVAR.

None of the definitions of variable length data element in this part of ISO 8583 include the two, three or four numeric positions of length in the representation column in Table 2 or Annex B. All length attributes shall be right justified and zero filled, e.g. primary account number 123456789012 is represented by 12123456789012. The first “12” indicates 12 digits to follow.

6.2.2 Binary data

6.2.2.1 Binary data elements

Binary data elements shall be grouped into blocks of 8 bits. The length attribute defines the number of such blocks present, e.g. the personal identification number data element has an attribute “b 8”, i.e. 8 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.

6.2.2.2 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 (i.e. LLVAR, LLLVAR or LLLLVAR), the numeric length value contains the number of 8 bit blocks of the binary data element which follows.

Annex C gives guidance on how messages formatted in accordance with this part of ISO 8583 may be transmitted across data networks.

6.2.3 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 would have a minor currency unit of 2 (e.g. one US dollar), but an amount of 100 in Italian currency would have a minor unit of currency of 0 (e.g. 100 lire).

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*.

A number of amount data elements have an associated sign C for credit and D for debit, such data elements have a representation of “xn” in Table 3, the associated notes and Annex B (see also Table 1). 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.

6.2.4 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, e.g. a conversion rate value of 91234567 would equate to 0.001234567. The maximum number of digits to the right of the decimal separator is 9. 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.

6.2.5 Identification of institutions and routing

6.2.5.1 General

Card issuing institutions shall be identified by the procedure specified in ISO 7812-1. Institutions that are not card issuers shall be identified by a six-digit code as defined in Clause 10.

A transaction may 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 may 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 *Primary account number 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.

Tables 4 to 6 and Figures 6 to 8 below 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.

6.2.5.2 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 4 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 4 — Usage of institution identification codes in acquirer generated messages

In request, advice or notification messages				
Institution	**Bit**	**Acquirer to A**	**A to B**	**B to Card issuer**
Acquirer	32	Remains the same throughout the transaction.		
Forwarding institution	33	[a]	A	B
Receiving institution	100	A	B	[b]
Card issuer	2	Remains the same throughout the transaction.		
In response messages				
Institution	**Bit**	**Card issuer to B**	**B to A**	**A to Acquirer**
Acquirer	32	Remains the same throughout the transaction.		
Forwarding institution	33	[b]	B	A
Receiving institution	100	B	A	[a]
Card issuer	2	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.

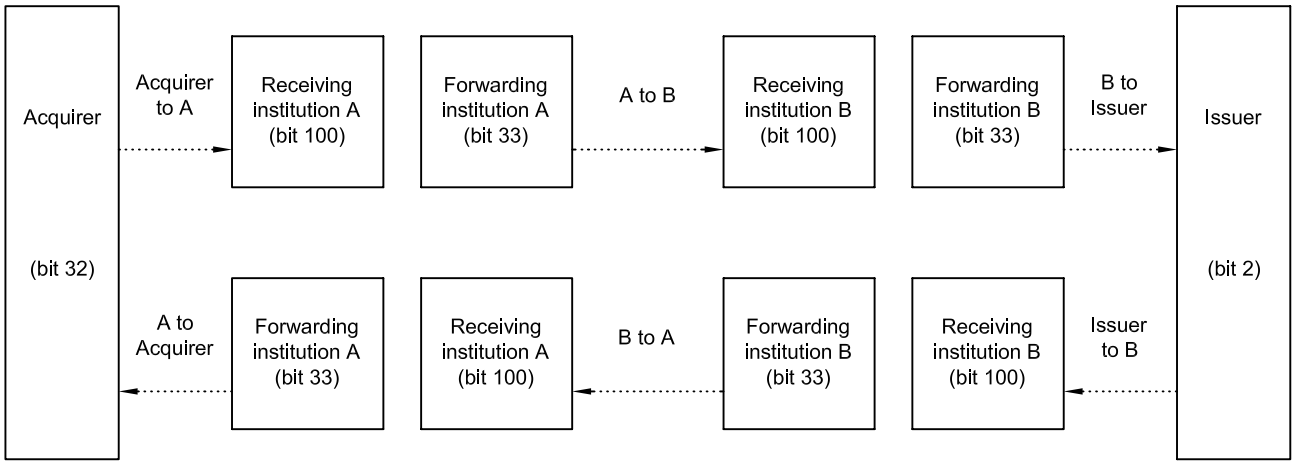


Figure 6 — Usage of institution identification codes in acquirer generated messages

6.2.5.3 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 5 and graphically in Figure 7. The letters A and B represent other institutions that may be present between card issuers and acquirers.

Table 5 — Usage of institution identification codes in card issuer generated messages

In request, advice notification or instruction messages				
Institution	**Bit**	**Card issuer to A**	**A to B**	**B to Acquirer**
Card issuer	2	Remains the same throughout the transaction.		
Forwarding institution	33	[a]	A	B
Receiving institution	100	A	B	[b]
Acquirer	32	Remains the same throughout the transaction.		
In response messages				
Institution	**Bit**	**Acquirer to B**	**B to A**	**A to Card issuer**
Card issuer	2	Remains the same throughout the transaction.		
Forwarding institution	33	[b]	B	A
Receiving institution	100	B	A	[a]
Acquirer	32	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.

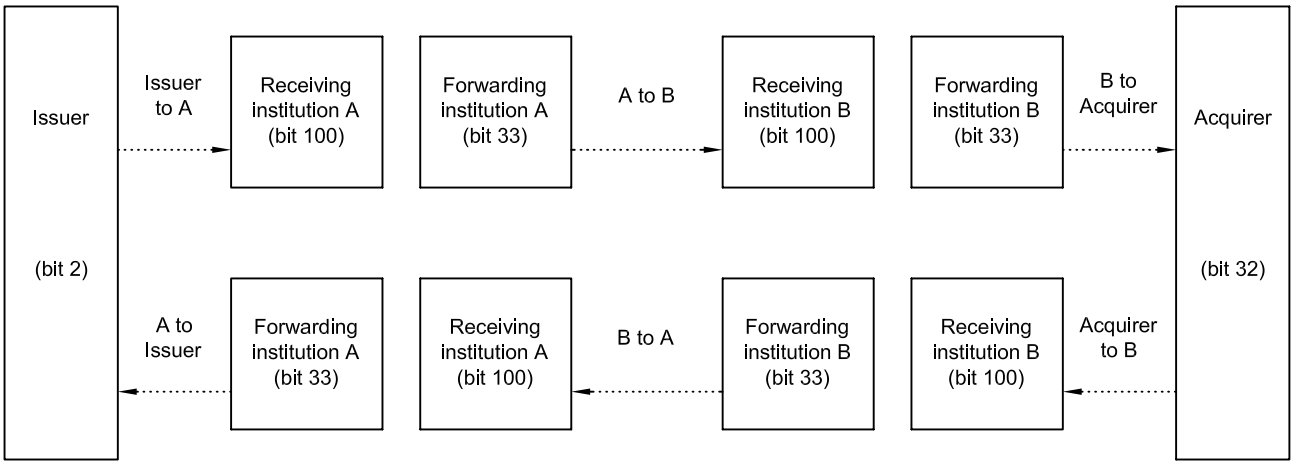


Figure 7 — Usage of institution identification codes in card issuer generated messages

6.2.5.4 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 6 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 6 — Usage of institution identification codes in transaction originator generated messages

In request, advice notification or instruction messages				
Institution	**Bit**	**Originator to A**	**A to B**	**B to Destination**
Transaction originator	94	Remains the same throughout the transaction.		
Forwarding institution	33	[a]	A	B
Receiving institution	100	A	B	[b]
Transaction destination	93	Remains the same throughout the transaction.		
In response messages				
Institution	**Bit**	**Destination to B**	**B to A**	**A to Originator**
Transaction originator	94	Remains the same throughout the transaction.		
Forwarding institution	33	[b]	B	A
Receiving institution	100	B	A	[a]
Transaction destination	93	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.

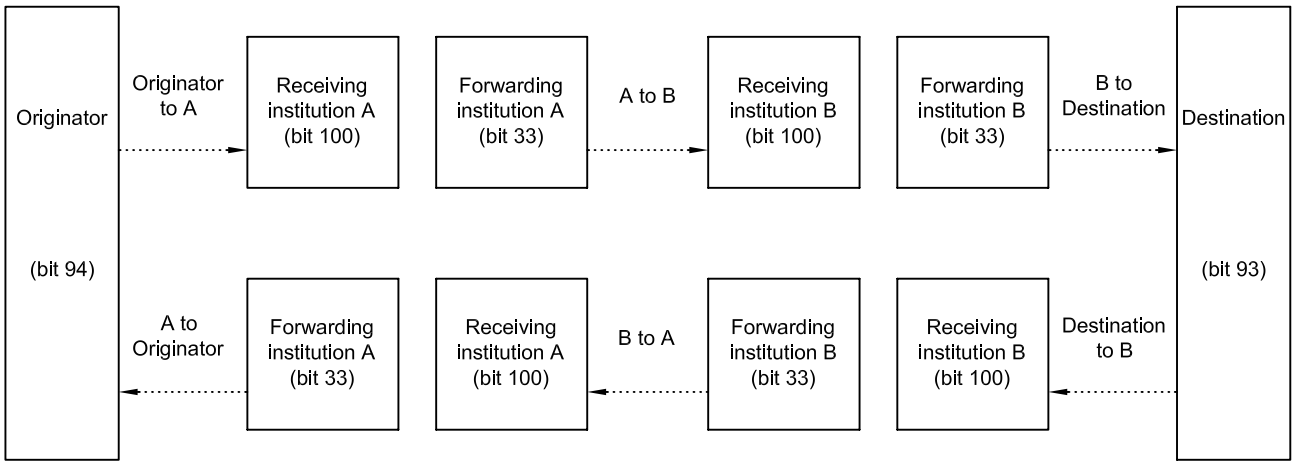


Figure 8 — Usage of institution identification codes in transaction originator generated messages

6.2.6 Identification of account numbers

The *Primary account number* (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*.

6.2.7 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 part of ISO 8583 follows the conventions defined in ISO 7816-4 in the creation of values. Tag values specific to this part of ISO 8583 are referenced in the relevant clauses and listed together in Clause A.18.

6.3 Specific requirements for primitive data elements

6.3.1 Date and time transmission (bit 7)

The message initiator creates the *Date and time transmission*. The content is the UTC timestamp of each message initiator and will change as the content of *Forwarding institution identification code* changes, following the course of the transaction from one institution to the next.

It is used to support process control between successive institutions through which a transaction is passing. The “message initiator” is each individual institution (as described in 6.2.5) creating its own individual message for passing the transaction on to the next institution. Successive recipients of the message can then log the content of the field for reference purposes.

6.3.2 Action code (bit 39)

The numbering scheme for action codes shall be based upon the type of action and has no direct correlation to the message type identifier. The action codes are grouped as follows:

a) 0xxx: authorization/financial presentment approved.

b) 1xxx: authorization/financial presentment denied.

c) 2xxx: authorization/financial presentment denied, pick up card.

d) 3xxx: file actions.

e) 4xxx: reversal or chargeback actions.

f) 5xxx: reconciliation actions.

g) 6xxx: administrative actions.

h) 7xxx: fee collection actions.

i) 8xxx: network management actions.

j) 9xxx: error/response actions.

The action code values are given in Clause A.1.

6.3.3 Message authentication code (MAC) (bit 64/128)

The *MAC field* is used to validate the source and the text of the message between the sender and receiver.

The last bit position within any message bit map shall be reserved for the *MAC field* data element.

If message authentication is used, the final bit in the final bit map of the message shall represent the *MAC field* data element and the final bit of any previous bit maps shall contain zero. This means that only one *MAC field* data element shall be present per message and the *MAC field* data element shall be the last data element of the message.

6.4 Specific requirements for constructed data elements

6.4.1 Processing code (bit 3)

The *Processing code* is a constructed data element (see 5.4.3) of three parts totalling 6 positions:

a) *Transaction type code*, an 2;

b) *Account type code 1*, an 2;

c) *Account type code 2*, an 2.

The *Transaction type code* describes the specific transaction type (see A.17.1). The *Account type Code 1* describes the account type affected for debits and inquiries and the “from” account for transfers. The *Account type Code 2* describes the account type affected for credits and the “to” account for transfers (see A.17.2).

6.4.2 Amount transaction (bit 4)

The *Amount transaction* data element is a constructed data element (see 5.4.3) of three parts totalling 16 positions:

a) *Currency code amount transaction,* n 3;

b) *Currency minor unit amount transaction,* n 1;

c) *Value amount transaction,* n 12.

6.4.3 Amount reconciliation (bit 5)

The *Amount reconciliation* data element is a constructed data element (see 5.4.3) of three parts totalling 16 positions:

a) *Currency code amount reconciliation*, n 3;

b) *Currency minor unit amount reconciliation*, n 1;

c) *Value amount reconciliation*, n 12.

6.4.4 Amount cardholder billing (bit 6)

The *Amount cardholder billing* is a constructed data element (see 5.4.3) of three parts totalling 16 positions:

a) *Currency code amount cardholder billing*, n 3;

b) *Currency minor unit amount cardholder billing*, n 1;

c) *Value amount cardholder billing*, n 12.

The *Amount cardholder billing* data element may be used to:

— Provide the *Amount transaction* expressed in the currency of the cardholder in a response message, e.g. for printing on a receipt;

— Provide the *Amount transaction* expressed in the currency of the cardholder in a request, advice or notification message when it is different from both the currency of transaction and currency of reconciliation.

6.4.5 Amount cardholder billing fee (bit 8)

The *Amount cardholder billing fee* is a constructed data element (see 5.4.3) of three parts totalling 12 positions:

a) *Currency code amount cardholder billing fee*, n 3;

b) *Currency minor unit amount cardholder billing fee*, n 1;

c) *Value amount cardholder billing fee*, n 8.

The *Amount cardholder billing fee* data element may be used to provide cardholder fee information in a Financial Presentment response, e.g. for printing on a receipt.

6.4.6 Date and time local transaction (bit 12)

The *Date and time local transaction* is a constructed data element (see 5.4.3) of two parts totalling 14 positions:

a) *Date local transaction*, n 8 format CCYYMMDD;

b) *Time local transaction*, n 6 format hhmmss.

These parts provide the local year, month, day and time in which the transaction takes place at the card acceptor location in Authorization messages and Financial Presentment messages.

In all other message classes, it is the year, month, day and time set by the initiator of the first message in the transaction.

In all cases it shall remain unchanged throughout the lifetime of the transaction.

6.4.7 Message error indicator (bit 18)

The *Message error indicator* data element is a constructed data element (see 5.4.3) of up to ten sets of values. Each set of values shall define a single error condition and shall consist of six parts totalling 14 positions:

a) *Error severity code*, n 2;

b) *Message error code*, n 4;

c) *Data element in error*, n 3;

d) *Data sub-element in error* (in constructed data element), n 2;

e) *Dataset identifier in error* (in composite data element), b 1;

f) *Dataset bit or tag in error* (in composite data element), b 2.

The *Error severity code* shall contain a value of 00 to denote a rejected message. Additional values may be set by bilateral agreement to denote a message that was accepted and processed, but contained invalid data in non-critical elements.

The *Message error code* shall contain a code identifying the error condition, such as missing data or non-numeric data. Refer to Clause A.10 for a list of message error codes.

The *Data element in error* shall contain the data element number (001-128) from the message bit map in which the erroneous data exists.

The *Data sub-element in error* shall contain a value of zeroes if the data element in error is a primitive or composite data element. If the data element in error is a constructed data element, the data sub-element in error shall contain the part of the element that is in error.

The *Dataset identifier in error* shall contain a value of zeroes if the data element in error is a primitive or constructed data element. If the data element in error is a composite data element, the dataset identifier in error shall contain the dataset identification number, in binary format, in which the erroneous data occurs.

The *Dataset bit or tag in error* shall contain a value of zeroes if the data element in error is a primitive or constructed data element. If the data element in error is a composite data element, the dataset bit or tag in error shall contain the dataset bit number or tag number, in binary format, of the erroneous data.

The above parts may be repeated several times, so that up to ten different error conditions per message may be reported in this data element.

Tables 7, 8, and 9 show examples of typical error situations.

EXAMPLE 1 Is an error in a primitive data element. It is assumed that the receiver rejects a message because *Message reason code* does not contain a valid value. The receiver shall format the *Message error indicator* data element as follows:

Table 7 — Error in a primitive data element

Data element	Value
Error severity code	00
Message error code	0003
Data element in error	025
Data sub-element in error	00
Dataset identifier in error	00 (binary format)
Dataset bit or tag in error	0000 (binary format)

EXAMPLE 2 Is an error in a constructed data element. It is assumed that the receiver rejects a message because *Original amount transaction* contains non-numeric data. The receiver shall format the *Message error indicator* data element as follows:

Table 8 — Error in a constructed data element

Data element	Value
Error severity code	00
Message error code	0004
Data element in error	030
Data sub-element in error	01
Dataset identifier in error	00 (binary format)
Dataset bit or tag in error	0000 (binary format)

EXAMPLE 3 Is an error in a composite data element. It is assumed that the receiver rejects a message because the *Cardholder certificate serial number* is missing. The receiver shall format the *Message error indicator* data element as follows:

Table 9 — Error in a composite data element

Data element	Value
Error severity code	00
Message error code	0001
Data element in error	034
Data sub-element in error	00
Dataset identifier in error	72 (binary format)
Dataset bit or tag in error	0002 (binary format)

6.4.8 Transaction life cycle identification data (bit 21)

The *Transaction life cycle identification data* data element is a constructed data element (see 5.4.3) of 4 parts totalling 22 positions:

a) *Life cycle support indicator*, ans 1;

b) *Life cycle trace identifier,* ans 15;

c) *Life cycle transaction sequence number,* n 2;

d) *Life cycle authentication token,* n 4.

Transaction life cycle identification data is a unique identifier used to match transactions across message classes, e.g. authorization to financial presentment or financial presentment to chargeback. It shall contain the same value in all message classes throughout a transaction's life cycle. For the use of this data element in transaction matching, see 9.3.

Life cycle support indicator is a one digit message class code indicating the point in a transaction's life when the *Life cycle trace identifier* was allocated, e.g. 1 for authorization, 2 for financial presentment.

Life cycle trace identifier formatting and the institution that assigns it are defined by bilateral agreement.

Life cycle support indicator and *Life cycle trace identifier* are allocated at the first point in a transaction's life cycle in which it travels between the acquirer and the card issuer. Once assigned, the *Life cycle support indicator* and *Life cycle trace identifier* shall be present in all subsequent messages related to the transaction (e.g. responses, acknowledgements, chargebacks, reversals, retrievals etc.) and shall contain the same value as those originally assigned.

Life cycle transaction sequence number may be assigned by the acquirer following the receipt of an authorization and prior to the submission of the financial presentment.

a) Where a single authorization was obtained covering a number of financial presentments, (e.g. in the airline industry an acquirer may obtain one authorization when a single card is used to purchase multiple tickets at the same time), the acquirer may then submit multiple financial presentments, one for each ticket. Each financial presentment shall contain the same *Life cycle trace identifier* and an incrementing value in *Life cycle transaction sequence number* (e.g. 01, 02, etc.).

b) Where multiple authorizations were obtained covering a single financial presentment, (e.g. in the hotel industry where an acquirer obtains several authorizations when a cardholder chooses to extend his stay) the acquirer may:

   1) assign the same non-zero value to *Transaction life cycle identification data* for each authorization and submit the same value in the financial presentment;

   2) alternatively, assign different values to the *Transaction life cycle identification data* for each authorization and then submit a single financial presentment where the *Transaction life cycle identification data* of the final authorization obtained shall be used.

Life cycle authentication token is assigned by the card issuer when the transaction is authorised. The acquirer returns it in the following financial presentment message. It is used as a quick means of ensuring that critical data elements contain the same values in the authorization and financial presentment. The card issuer creates it by applying a mutually agreed algorithm to the contents of specific data elements in the authorization request message. The acquirer then submits the same *Life cycle authentication token* in the financial presentment. Upon receipt of the financial presentment, the card issuer applies the same algorithm and checks to see if this new result equals the *Life cycle authentication token* submitted by the acquirer. If so, the card issuer may assume that the values of the critical data elements are the same between the authorization and financial presentment.

The *Life cycle transaction sequence number* and *Life cycle authentication token* may be omitted if mutually agreed by the transaction participants. If omitted, these data elements shall contain all zeroes.

6.4.9 Point of service data code (bit 22)

6.4.9.1 Overview

The *Point of service data code* is a constructed data element (see 5.4.3) of 4 parts totalling 16 binary characters:

a) *Card reading method used at POS*, b 4;

b) *Cardholder verification method used at POS*, b 4;

c) *POS environment*, b 4;

d) *Security characteristics,* b 4.

The *Point of service data code* is used to indicate how the transaction was completed at the point of service. The data provided by this data element, in conjunction with that provided in *Point of service capability,* allows card issuers to make appropriate authorization and chargeback decisions.

6.4.9.2 Card reading method used at POS

The actual method used to obtain the data depends on a number of factors. A.16.1 gives the bit positions indicating the card reading capabilities actually used by the POS or how account data was obtained for this transaction. The acquirer shall indicate if a transaction is a fallback transaction by setting the appropriate bit.

6.4.9.3 Cardholder verification method used at POS

The actual method used to verify the cardholder depends on a number of factors. A.16.2 gives bit positions indicating the cardholder verification method actually used by the POS.

6.4.9.4 POS environment

The POS environment may influence the card issuer's authorization decision. A transaction that may be approved at an attended POS may, for example, be declined if the transaction is taking place across the Internet without an acceptable security technique being used.

The significant factor, from the point of view of a card issuer, is the ability of the card acceptor to perform card and cardholder security checks, e.g. any ICC checks, or to compare any signatures with that on the card and possibly pick up the card if requested to do so.

For the purposes of this part of ISO 8583:

— attended POS is where the card, cardholder and card acceptor are all present;

— unattended POS is where any one of either the card, cardholder or card acceptor are not present.

The options that this part of ISO 8583 defines are:

a) unknown, where the acquirer has no information as to the POS environment for this transaction;

b) attended POS, where it is known that the card, cardholder and acceptor are all present;

c) unattended unknown, where it is known that one or other of the card, cardholder or acceptor are not present but it is not known what type of unattended transaction this is;

d) mail order/telephone order, where the transaction completes using a network (such as the telephone network or postal network) where there is no direct communication links possible with the cardholder or the card;

e) electronic commerce, where the transaction is conducted using the Internet. *Electronic commerce data* indicates which security technique has been used. If an ICC has been read, then *Integrated circuit card (ICC) systems related data* may also be present;

f) mobile commerce, where the transaction is conducted using a mobile phone operator's network (either completely or as a gateway to the Internet). *Electronic commerce data* indicates which security technique has been used. If an ICC has been read, then *Integrated circuit card (ICC) systems related data* may also be present;

g) recurring (or periodic) transaction, where a cardholder has lodged card details with a card acceptor who submits transactions on a periodic basis, e.g. subscriptions and utility bills etc.;

h) stored details, where card details are stored with the retailer and called upon as transactions are performed, e.g. hotel reservations, Internet wallets and RFID tokens;

i) CAT, which is an automated device that is operated solely by the cardholder, e.g. an automated fuel dispenser;

j) ATM, which is a specific type of CAT but is separately identified due to the higher fraud risks associated with cash. The location of an ATM is also significant, e.g. whether on or off the premises of a financial institution;

k) deferred transaction, where the financial presentment takes place after an agreed period of time has elapsed;

l) instalment transaction, where a fixed number of financial presentment transactions are submitted, usually at agreed intervals.

A.16.3 gives the bit positions indicating the actual environment where the transaction took place.

6.4.9.5 Security characteristics

For unattended transactions, the security characteristics of the communications link between the cardholder and the card acceptor are a factor in card issuer authorization and chargeback decision processes. A.16.4 gives the bit positions indicating the security characteristics applicable to the transaction.

6.4.10 Point of service capability (bit 27)

6.4.10.1 Overview

Point of service capability is a constructed data element of 11 parts totalling 27 positions:

a) *POS card reading capability*, b 4;

b) *POS cardholder verification capability*, b 4;

c) *Approval code length,* n 1;

d) *Cardholder receipt data length,* n 3;

e) *Card acceptor receipt data length,* n 3;

f) *Cardholder display data length,* n 3;

g) *Card acceptor display data length,* n 3;

h) *ICC scripts data length,* n 3;

i) *Magnetic stripe track 3 rewrite capability,* a 1 (Y or N only);

j) *Card capture capability,* a 1 (Y or N only);

k) *PIN input length capability,* b 1.

For d), e), f), g) and h), a length of 000 indicates that the POS does not support card issuer input for this option and a length of 999 indicates that the POS capability is unknown

The *Point of service capability* data element is used to indicate the capabilities of the point of service.

The use of the data provided by this data element in conjunction with that provided in *Point of service data code* allows card issuers to make appropriate authorization and chargeback decisions.

The growing variety and complexity of transactions is creating the need for the card issuer to be able to send data back to the POS, either for the cardholder, the card acceptor staff, or to update the storage medium on the card, e.g. the ICC via script processing.

To support these requirements, it is necessary for the card issuer to be aware of the limitations of the POS in terms of the amount of data it can accept and the output options it can support.

Additional response data shall be used to return display or receipt details (see 6.5.3). Any ICC data shall be returned in *Integrated circuit card* (*ICC) systems related data* and any track 3 data shall be returned in *Track 3 data*. The *Action code* indicates if a card is to be captured or not.

6.4.10.2 POS card reading capability

A card issued to a cardholder may support several different reading technologies to hold information about the account and the cardholder. It is inevitable that cards will be used in points of service where support for the latest technologies may not yet be available. A.15.1 gives the code values indicating the card reading capabilities of the POS.

6.4.10.3 POS cardholder verification capability

A card issuer may support a number of cardholder verification methods, depending on the technologies available on the card. The capabilities of the POS may not be as advanced as the capabilities of the card in supporting all the different techniques for verifying the cardholder. The cardholder verification capabilities of the POS are given in A.15.2.

6.4.10.4 PIN input length capability

The capability of the POS (or ATM) to accept PIN digits input by the cardholder is given as a single binary number where the value indicates the number of PIN digits which can be captured. A value of all zeroes indicates that the capture capability is unknown.

6.4.11 Amounts original (bit 30)

The *Amounts original* data element is a constructed data element (see 5.4.3) of two parts totalling 32 positions:

a) *Original amount transaction*, n 16;

b) *Original amount reconciliation*, n 16.

Both amounts shall consist of three parts format totalling 16 positions each, as follows:

— *Currency code, (Original amount transaction* or *Original amount reconciliation)*, n 3;

— *Currency minor unit, (Original amount transaction* or *Original amount reconciliation)*, n 1;

— *Value, (Original amount transaction* or *Original amount reconciliation)*, n 12.

Absence of data shall be indicated by zeroes. These parts shall be used when attempting to partially reverse or partially chargeback a previous transaction or to perform a partial approval and shall contain the original amounts. They shall also be used when performing replacement or supplementary authorizations. The new transaction amounts shall be in the appropriate data elements. These amounts are for information only and shall not be used in the calculation of reconciliation totals.

6.4.12 Acquirer reference number (bit 31)

The *Acquirer reference number* is a constructed data element (see 5.4.3) consisting of five parts totalling 23 positions:

a) *User format identifier*, n 1;

b) *Acquirer number*, n 6;

c) *Julian processing date*, n 4;

d) *Sequence number*, n 11;

e) *Luhn check digit*, n 1.

6.4.13 Amounts fees (bit 46)

The *Amounts fees* data element is a constructed data element (see 5.4.3) of up to six sets of values. Each set of values shall consist of four parts totalling 36 positions:

a) *Fee type code,* n 2. (see Clause A.8);

b) *Amount fee*, xn 13;

c) *Conversion rate fee*, n 8;

d) *Amount reconciliation fee*, xn 13.

The second and fourth parts shall both consist of three parts totalling 12 positions, as follows:

— *Currency code, (Amount fee* or *Amount reconciliation fee)*, n 3;

— *Currency minor unit (Amount fee* or *Amount reconciliation fee)*, n 1;

— *Value, (Amount fee* or *Amount reconciliation fee)*, n 8.

6.4.14 Amounts additional (bit 54)

The *Amounts additional* data element is a constructed data element (see 5.4.3) of up to six sets of values. Each set of values shall consist of three parts totalling 21 positions:

a) *Account type additional amounts*, an 2 (as defined in positions 3 and 4 or positions 5 and 6 of the processing code data element (see A.17.2);

b) *Amount type additional amounts*, an 2 (amount type code values are in Clause A.4);

c) *Amount additional amounts,* xn 17.

The third part, (the *Amount additional amounts* data element) shall consist of three parts totalling 16 positions:

— *Currency code amount additional amounts*, n 3;

— *Currency minor unit amount additional amounts*, n 1;

— *Value amount additional amounts*, n 12.

6.4.15 Original data elements (bit 56)

The *Original data elements* is a constructed data element (see 5.4.3) of four parts of up to 41 positions:

a) *Original message type identifier*, n 4;

b) *Original system trace audit number,* n 12;

c) *Original date and time local transaction,* n 14;

d) *Original acquiring institution identification code,* n 11.

Absence of data shall be indicated by zeroes. The length of the variable length sub-element *Original acquiring institution identification code* is determined from the overall length of this data element.

6.4.16 Amounts original fees (bit 66)

The *Amounts original fees* data element is a constructed data element (see 5.4.3) of up to six sets of values. Each set of values shall consist of four parts totalling 36 positions:

a) *Original fee type code*, n 2 (see Clause A.8);

b) *Original amount fee,* xn 13;

c) *Original conversion rate fee*, n 8;

d) *Original amount reconciliation fee,* xn 13.

These parts shall be used when attempting to partially reverse or partially chargeback a previous transaction, or to perform a partial approval and shall contain the original fee amounts. The new fee amounts shall be in the appropriate data elements. The original fee amounts are for information only and shall not be used in the calculation of reconciliation totals.

The second and fourth parts (the *Original amount fee* and *Original amount reconciliation fee* data elements) shall both consist of three parts totalling 12 positions:

— *Currency code, (Original amount fee* or *Original amount reconciliation fee)*, n 3;

— *Currency minor unit (Original amount fee* or *Original amount reconciliation fee)*, n 1;

— *Value, (Original amount fee* or *Original amount reconciliation fee)*, n 8.

6.4.17 Batch/file transfer message control (bit 68)

The *Batch/file transfer message control* data element is a constructed data element (see 5.4.3) of two parts totalling 9 positions:

a) *Batch/file transfer acknowledgement code*, an 1 (see Clause A.6);

b) *Batch/file transfer message sequence number,* n 8.

See 8.16.4.2 and 8.17.4.2 for additional information.

6.4.18 Batch/file transfer control data (bit 69)

The *Batch/file transfer control data* data element is a constructed data element (see 5.4.3) of two parts totalling 40 positions:

a) *Batch/file transfer message count*, n 8;

b) *Batch/file transfer file identification*, ans 32.

See 8.16.4.3 and 8.17.4.2 for additional information.

6.4.19 File transfer description data (bit 70)

The *File transfer description data* data element is a constructed data element (see 5.4.3) of three parts totalling 18 positions:

a) *File transfer file size*, n 6;

b) *File transfer elementary data record count*, n 6;

c) *File transfer remaining elementary data record count*, n 6.

See 8.17.4.4 for additional information.

6.4.20 Reconciliation data primary (bit 74)

The *Reconciliation data primary* data element is a constructed data element (see 5.4.3) of 12 parts (containing all the individual values needed to calculate *Amount net reconciliation*) totalling 156 positions:

a) *Credits amount*, n 16;

b) *Credits number,* n 10;

c) *Credits chargeback amount,* n 16;

d) *Credits chargeback number,* n 10;

e) *Credits reversal amount,* n 16;

f) *Credits reversal number,* n 10;

g) *Debits amount,* n 16;

h) *Debits number,* n 10;

i) *Debits chargeback amount,* n 16;

j) *Debits chargeback number,* n 10;

k) *Debits reversal amount,* n 16;

l) *Debits reversal number,* n 10.

The currency code and the associated currency minor units applicable to these data elements are the ones applicable to *Amount net reconciliation* (see 6.4.22).

6.4.21 Reconciliation data secondary (bit 75)

The *Reconciliation data secondary* data element is a constructed data element (see 5.4.3) of 9 parts totalling 90 positions:

a) *Authorizations number*, n 10;

b) *Authorizations reversal number,* n 10;

c) *Inquiries number,* n 10;

d) *Inquiries reversal number,* n 10;

e) *Fee collections number,* n 10;

f) Payments number, n 10*;*

g) *Payments reversal number*, n 10;

h) *Transfers number,* n 10;

i) *Transfers reversal number,* n 10.

6.4.22 Amount net reconciliation (bit 97)

The *Amount net reconciliation* data element is a constructed data element (see 5.4.3) of three parts totalling 21 positions:

a) *Currency code amount net reconciliation*, n 3;

b) *Currency minor unit amount net reconciliation*, n 1;

c) *Value amount net reconciliation*, xn 17.

6.4.23 Reconciliation fee amounts (bit 109/110)

The *Reconciliation fee amounts credit* and *Reconciliation fee amounts debit* data elements are both constructed data element (see 5.4.3) of up to six sets of values. Each set of values shall consist of three parts totalling 24 positions:

a) *Fee type code,* n 2 (see Clause A.8);

b) *Amount fee total*, n 12;

c) *Number fee total*, n 10.

Fees are accumulated for reconciliation in one of two data elements. The currency code and the associated currency minor units applicable to these data elements are the ones applicable to *Amount net reconciliation* (see 6.4.22).

6.5 Specific requirements for composite data elements

6.5.1 Electronic commerce data (bit 34)

The *Electronic commerce* data element is a composite data element (see 5.4.4) where data from digital certificates and public key cryptography systems used in support of a transaction is exchanged between acquirers and card issuers. Table 10 lists the sub-elements, which may be present.

Table 10 — Electronic commerce sub-elements

Bit	**34**	**Dataset Identifier**	**71**	**Account based digital signature without certificate**	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Account based digital signature			LLVAR	b..90
3-15	Reserved for ISO use				
16	Multiple TLV sub-elements			LLLVAR	b..255
Bit	**34**	**Dataset Identifier**	**72**	**Public key certificate authentication data**	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Cardholder certificate serial number			LLVAR	b..16
3	Card acceptor certificate serial number			LLVAR	b..16
4	XID				b 20
5	Transstain				b 20
6-15	Reserved for ISO use				
16	Multiple TLV sub-elements			LLLVAR	b..255
Tag 80	Authentication code			TLV	ansb..50

6.5.2 Card acceptor name/location (bit 43)

The *Card acceptor name/location* data element is a composite data element (see 5.4.4) containing information related to the card acceptor, such as name, city, and phone number. Table 11 lists the sub-elements, which may be present.

Table 11 — Card acceptor name/location sub-elements

Bit	43	Dataset identifier	71	Card acceptor name/location data		
Dataset bit	**Name**		**Condition**	**Format**	**Representation**	
1	Continuation bit					
2	Card acceptor name		M	LLVAR	ans..50	
3	Card acceptor street address			LLVAR	ans..99	
4	Card acceptor city		M	LLVAR	ans..50	
5	Card acceptor state, province, or region code				ans 3	
6	Card acceptor postal code				ans 10	
7	Card acceptor country code		M		a 3	
8	Card acceptor phone number				ans 16	
9	Card acceptor customer service phone number		03		ans 16	
10	Card acceptor additional contact information			LLVAR	ans..30	
11	Card acceptor internet URL		01	LLLVAR	ans..255	
12	Card acceptor e-mail address		02	LLVAR	ans..99	
13-15	Reserved for ISO use					
16	Multiple TLV sub-elements			LLLVAR	b..255	
Tag 81	Card acceptor additional address information			TLV	an..256	

Table 12 defines the mandatory and conditional codes applicable to *Card acceptor name/location* sub-elements. Sub-elements may be mandatorily present, conditionally present or optional.

a) "M" (mandatory) signifies that the sub-element is required.

b) If the condition identified in Table 12 applies, then the sub-element shall be present, otherwise its is subject to bilateral agreement.

Nothing prohibits the use of any of the data (or TLV) objects specified as mandatory and/or conditional or optional within the *Card acceptor name/location* data element. The use of these additional sub-elements is subject to bilateral agreement.

Table 12 — Card acceptor name/location condition codes

Code	Condition
—	Optional
M	Mandatory
01	Mandatory if POS data (DE22) indicates an electronic commerce transaction and an e-mail address is not available
02	Mandatory if POS data (DE22) indicates an electronic commerce transaction and an internet URL is not available
03	Mandatory if no other specific contact data is available

6.5.3 Additional response data (bit 44)

The *Additional response data* data element is a composite data element (see 5.4.4) which informs the card issuer of the capabilities of the POS to support the printing and or display of data from the card issuer. The data to be printed or displayed is returned to the POS in this data element. Table 13 lists the sub-elements, which may be present.

The potential maximum length of all the sub-elements exceeds that of this data element. It is up to the card issuer to adjust the lengths of the individual sub-elements to ensure the maximum length of this data element is not exceeded.

Table 13 — Additional response sub-elements

Bit	44	Dataset identifier	71	Additional response data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				b 1
2	Cardholder receipt data			LLVAR	ans..99
3	Card acceptor receipt data			LLVAR	ans..99
4	Cardholder display data			LLVAR	ans..99
5	Card acceptor display data			LLVAR	ans..99
6	Card issuer telephone number				ans 16
7-15	Reserved for ISO use				
16	Multiple TLV sub-elements			LLLVAR	b..255

6.5.4 Verification data (bit 49)

The *Verification data* data element is a composite data element (see 5.4.4) containing additional data used to support the identification of someone (e.g. cardholder) or something (e.g. account existence) through the use of address verification, account verification or other identification, such as a driver's license.

Table 14 lists the sub-elements that may be present in a request and Table 15 lists the sub-elements that may be present in a response.

Table 14 — Verification request data

Bit	49	Dataset Identifier	71	Verification request data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Card verification data				n 4
3	Cardholder billing street address				ans 40
4	Cardholder billing postal code				ans 10
5	Cardholder billing address compressed				ans 16
6	Additional identification type				n 1
7	Additional identification reference number			LLVAR	ans..30
8-15	Reserved for ISO use				
16	Multiple TLV sub-elements			LLLVAR	b..255

Table 15 — Verification results data

Bit	49	Dataset Identifier	72	Verification results data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Address verification result code				an 1
3-15	Reserved for ISO use				
16	Multiple TLV sub-elements			LLLVAR	b..255

6.5.5 Integrated circuit card (ICC) related data (bit 55)

The *Integrated circuit card* (*ICC) related data* data element is a special form of a composite data element (see 5.4.4) used to transmit ICC related data from the ICC to the card issuer and from the card issuer to the ICC.

If the data is in accordance with ISO 7816-6, there is no requirement for a dataset identifier or dataset bit map as these functions are covered by the ISO 7816-6 TLV coding structures. The result is that the dataset identifier is replaced by the T element, the dataset length by the L element and the sub-elements by the V element.

The ICC data may consist of either a constructed data object and/or a series of individual data objects as specified in ISO 7816-6.

If the data is in accordance with ISO 7816-6 and pertains to a single application, the data may be wrapped in a constructed data object. Data structures not in accordance with ISO 7816-6 are subject to bilateral agreement.

If the data pertains to more than one application, the data for each application shall be grouped together and shall be wrapped by a constructed data object for the length of the data for that application.

Tags may be in any order. Tags are application specific so that the same tag may appear in more than one application and have different meanings in each application. The constructed data objects may have the same or different tag values. It is up to the card issuer to determine how to process each application.

Figure 9 shows how a typical ISO 7816-6 compliant single application might be constructed where there is no application constructed data wrapped around the application objects.

Figure 10 shows how two typical ISO 7816-6 applications might be constructed where both have to be wrapped in constructed data objects. The constructed data object tags of 70 and 71 are used within the figure for illustrative purposes only and are not meant to imply any specific usage or purpose in implementations of this part of ISO 8583.

The values for the tag and length elements in Figures 9 and 10 are given as the hexadecimal equivalent of the relevant binary values. The length of bit 55 is given as a 4 digit numeric value.

Length of DE55	TLV coded data objects in any order								
	T_1	L_1	V_1	T_2	L_2	V_2	T_3	L_3	v_3
0035	4F	10	AID	5A	0A	PAN	9A	03	Date

Figure 9 — A single application with no constructed data object present

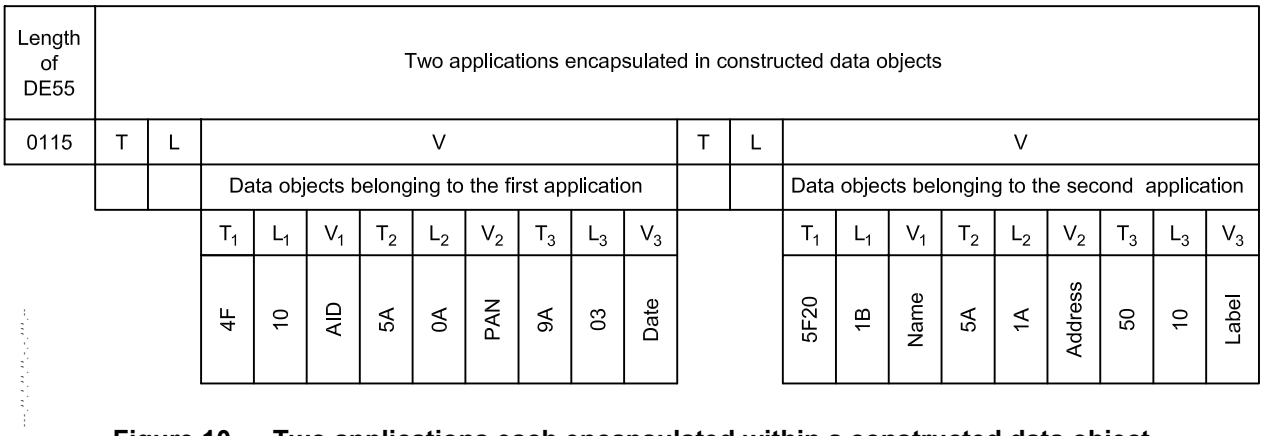


Figure 10 — Two applications each encapsulated within a constructed data object

6.5.6 Transaction specific data (bit 104)

6.5.6.1 Overview

The *Transaction specific data element* is a composite data element (see 5.4.4) containing data related to the non-financial aspects of a transaction.

Financial transaction cards are being used in an increasing number of transactions where additional, non-financial data is being collected as part of value added services provided by the card issuer. There is a wide and growing range of such additional data covering many differing business environments, e.g. airline itinerary data or purchasing card data with its supporting tax data.

Much of the additional data is industry specific and therefore only a small selection will ever accompany any one transaction. Non-financial data elements are assigned to industry specific datasets as follows (see Table 16).

Table 16 — Transaction specific datasets

Industry	Dataset identifier	See subclause
Free form description data	71	6.5.6.2
Invoice data, at header and line item detail level	72/73	6.5.6.3
Airline itinerary data	74/75	6.5.6.4
Auto rental/vehicle data	76	6.5.6.5
Lodging data	77	6.5.6.6
Fleet card data	78	6.5.6.7

6.5.6.2 Free-form description data

Acquirers and card issuers may need to exchange transaction description data that supports an industry or program that is not defined in existing *Transaction specific data* dataset IDs. In order to respond quickly to these new business opportunities, the parties involved may agree to a proprietary format for this new data and exchange it by means of the free form description data (see Table 17).

Table 17 — Free-form description data

Bit	104	Dataset identifier	71	Free-form description data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				b 1
2	Free-form description data			LLLVAR	ans..999
3-15	Reserved for ISO use				
16	Multiple TLV sub-elements			LLLVAR	b..255

6.5.6.3 Invoicing data

Cards are increasingly being issued to company buying departments and are used extensively to purchase business supplies. The use of cards in this environment can reduce companies' administrative costs in raising invoices. To be effective, the resultant reporting has to meet the requirements of the tax authorities. Table 18 and Table 19 details the data that is required to meet the relevant business and tax reporting requirements. The data in Table 19 will be repeated for each item on an invoice.

Table 18 — Invoicing header data

Bit	104	Dataset identifier	72	Invoicing header data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Invoice tax Indicator			0 = Tax not included 1 = Tax included	n 1
3	Invoice cardholder order reference number			LLVAR	an..22
4	Invoice cardholder's tax reference number			LLVAR	an..13
5	Invoice card acceptor invoice reference number			LLVAR	an..12
6	Invoice card acceptor tax reference number			LLVAR	an..20
7	Invoice amount total tax				n 12
8	Invoice amount bottom line discount				n 12
9	Invoice destination postal code			LLVAR	an..10
10	Invoice ship from postal code			LLVAR	an..10
11	Invoice destination country code				an 3
12	Invoice order date			CCYYMMDD	n 8
13	Invoice amount freight including tax				n 12
14	Invoice cost centre			LLVAR	a..20
15	Invoice customer reference			LLVAR	ans..20
16	Invoice card acceptor order number			LLVAR	an..15
17	Continuation bit				
18	Invoice value excluding tax				n 12
19	Invoice original invoice number			LLVAR	an..15
20	Invoice card acceptor customer reference number			LLVAR	an..17
21	Invoice freight tax rate				n 4
22	Invoice amount freight excluding tax				n 12
23	Invoice card acceptor type				ans 4
24	Invoice amount duty				n 12
25	Continuation bit				
26	Invoice destination state/province code				ans 3
27	Invoice amount alternate tax				n 12
28	Invoice amount alternate tax indicator			Y = yes N = no Space = unknown	as 1
29	Invoice alternate tax identifier				ans 15
30-31	Reserved for ISO use				
32	Multiple TLV sub-elements			LLLVAR	b..255

Table 19 — Invoicing line item data

Bit	104	Dataset identifier	73	Invoicing line item data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Line item dataset sequence number				b 2
3	Line item commodity code			LLVAR	an..16
4	Line item product code			LLVAR	an..15
5	Line item descriptor			LLVAR	an..40
6	Line item unit of measure			LLVAR	a..12
7	Line item unit price excluding tax			LLVAR	n..12
8	Line item product quantity			LLVAR	n..12
9	Line item amount discount				n 12
10	Line item tax rate				n 5
11	Line item value excluding tax				n 12
12	Line item value including tax				n 12
13	Line item amount tax				n 12
14	Line item quantity minor unit				n 1
15	Line item discount indicator			Y = yes N = no Space = unknown	as 1
16	Line item tax type				ans 4
17	Continuation bit				
18	Line item value debit/credit indicator			D = Debit C = Credit Space = unknown	as 1
19	Line item discount rate				ans 5
20-23	Reserved for ISO use				
24	Multiple TLV sub-elements			LLLVAR	b..255

6.5.6.4 Airline itinerary data

The data defined in Table 20 and Table 21 gives the data necessary for card issuers to provide travel reporting services to cardholders and their employers. The data in Table 21 will be repeated for each leg of a journey.

Table 20 — Airline itinerary data

Bit	104	Dataset identifier	74	Airline itinerary data – 1	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Airline ticket number			LLVAR	an..15
3	Airline carrier name			LLVAR	an..19
4	Airline travel agency code				an 8
5	Airline ticket agency name			LLVAR	an..25
6	Airline plan number				an 2
7	Airline invoice number				an 6
8	Airline original currency code				n 3
9	Airline passenger name			LLVAR	ans..29
10	Airline customer reference			LLVAR	ans.. 20
11	Airline amount original invoice				n 12
12	Airline ticket issue address			LLVAR	ans..16
13	Airline date ticket issue			CCYYMMDD	n 8
14	Airline amount total fare				n 12
15	Airline amount total fees				n 12
16	Airline amount total taxes				n 12
17	Continuation bit				
18-23	Reserved for ISO use				
24	Multiple TLV sub-elements			LLLVAR	b..255

Table 21 — Airline journey data

Bit	104	Dataset identifier	75	Airline itinerary data – 2	
Dataset bit		**Name**		**Format**	**Representation**
1		Continuation bit			
2		Trip leg dataset sequence number			b 2
3		Trip leg number			n 2
4		Trip leg departure airport			an 5
5		Trip leg carrier code			an 2
6		Trip leg fare basis code		LLVAR	an..15
7		Trip leg class of travel			an 2
8		Trip leg stop over code			an 1
9		Trip leg destination code			an 5
10		Trip leg date of travel		CCYYMMDD	n 8
11		Trip leg amount departure tax			n 12
12		Trip leg conjunction ticket number		LLVAR	an..15
13		Trip leg exchange ticket number		LLVAR	an..15
14		Trip leg coupon number			ans 1
15		Trip leg flight number			ans 5
16		Trip leg departure time			n 4
17		Continuation bit			
18		Trip leg departure time segment code		A = a.m. P = p.m. space = unknown	as 1
19		Trip leg arrival time			n 4
20		Trip leg arrival time segment code		A = a.m. P = p.m. Space = unknown	as 1
21		Trip leg amount fare			n 12
22		Trip leg amount fees			n 12
23		Trip leg amount taxes			n 12
24		Trip leg endorsements/restrictions		LLVAR	ans..20
25		Continuation bit			
26-31		Reserved for ISO use			
32		Multiple TLV sub-elements		LLLVAR	b..255

6.5.6.5 Auto rental/vehicle data

The data in Table 22 is used to provide vehicle rental reporting services to cardholders and their employers.

Table 22 — Auto rental/vehicle data

Bit	104	Dataset identifier	76	Auto rental/vehicle data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				
2	Auto rental address			LLVAR	ans..26
3	Auto rental date			CCYYMMDD	n 8
4	Auto rental time			HHMM	n 4
5	Auto return address			LLVAR	ans..26
6	Auto return date			CCYYMMDD	n 8
7	Auto return time			HHMM	n 4
8	Auto rental distance				n 5
9	Auto distance unit of measure			K = kilometres M = miles	a 1
10	Auto rental agreement reference			LLVAR	ans..25
11	Auto vehicle registration number				an 17
12	Auto odometer reading				n 8
13	Auto renter name			LLVAR	ans..29
14	Auto return city			LLVAR	ans..18
15	Auto return state/province				ans 3
16	Auto return country				ans 3
17	Continuation bit				
18	Auto return location identifier				ans 10
19	Auto customer service toll-free phone number				ans 16
20	Auto rental rate				n 12
21	Auto rental rate time period			D = daily W = weekly M = monthly Space = unknown	as 1
22	Auto maximum free miles/kilometres				n 4
23	Auto amount vehicle insurance				n 12
24	Auto vehicle insurance indicator			Y = yes N = No Space = unknown	as 1
25	Continuation bit				
26	Auto amount adjusted				n 12
27	Auto amount adjusted indicator code				as 1
28	Auto program code				ans 2
29	Auto rental city			LLVAR	ans..18
30	Auto rental state/province				ans 3
31	Auto rental country				ans 3
32	Auto rental location identifier				ans 10
33	Continuation bit				
34	Auto rental class identifier				ans 4
35-39	Reserved for ISO use				
40	Multiple TLV sub-elements			LLLVAR	b..255

6.5.6.6 Lodging data

The data in Table 23 is used to report information regarding lodging (hotel, motel, etc.) transactions.

Table 23 — Lodging data

Bit	104	Dataset identifier	77	Lodging data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				b 1
2	Lodging customer service toll-free phone number				ans 16
3	Lodging date arrival			CCYYMMDD	n 8
4	Lodging date departure			CCYYMMDD	n 8
5	Lodging folio number				ans 10
6	Lodging facility phone number				ans 16
7	Lodging amount billing adjustment				n 12
8	Lodging amount room rate				n 12
9	Lodging amount room tax				n 12
10	Lodging program code				ans 2
11	Lodging amount phone charges				n 12
12	Lodging amount restaurant/room service				n 12
13	Lodging amount bar/mini-bar				n 12
14	Lodging amount laundry/dry cleaning				n 12
15	Lodging amount other services				n 12
16	Lodging amount other services indicator				ans 3
17	Continuation bit				b 1
18	Lodging amount gift shop				n 12
19-23	Reserved for ISO use				
24	Multiple TLV sub-elements			LLLVAR	b..255

6.5.6.7 Fleet card data

The data in Table 24 is used to report information regarding motor fuel and related purchases involving company-owned fleets of vehicles.

Table 24 — Fleet card data

Bit	104	Dataset identifier	78	Fleet card data	
Dataset bit	**Name**			**Format**	**Representation**
1	Continuation bit				b 1
2	Fleet motor fuel oil company brand name				n 4
3	Fleet motor fuel service type code				ans 1
4	Fleet product code			LLVAR	an..15
5	Fleet unit price excluding tax				n 12
6	Fleet unit price including tax				n 12
7	Fleet unit of measure			LLVAR	ans..12
8	Fleet product quantity			LLVAR	n..12
9	Fleet quantity minor unit				n 1
10	Fleet line item value excluding tax				n 12
11	Fleet line item value including tax				n 12
12	Fleet odometer reading				n 8
13	Fleet vehicle registration number				an 17
14	Fleet driver number/other identification number			LLVAR	n..17
15	Fleet motor fuel prompt code				n 1
16	Fleet amount bottom line discount				n 12
17	Continuation bit				b 1
18	Fleet amount total tax				n 12
19-23	Reserved for ISO use				
24	Multiple TLV sub-elements			LLLVAR	b..255

7 Messages and transactions

7.1 Message protocol

7.1.1 General

This part of ISO 8583 specifies a message protocol, i.e. the circumstances under which particular messages/transactions shall (or may) be sent, the relationship between one message/transaction and another, but not the commercial responsibilities which flow from a particular message/transaction being transmitted.

7.1.2 Mandatory and conditional data elements

Messages are made up of a number of data elements, as indicated by the bit map. Data elements may 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 in Table 25.

a) “M” (mandatory) signifies that the data element is required in that message. “ME” (mandatory echo) signifies the contents shall be returned unaltered in a response message.

b) If the condition identified in Table 25 applies, then the data element shall be present, otherwise its inclusion in a message is subject to bilateral agreement.

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.

Table 25 — Data element condition codes

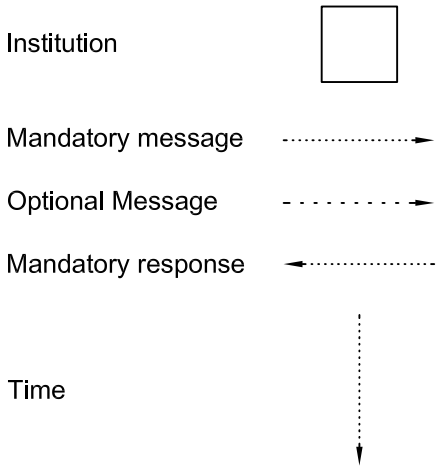
Code	Condition
—	Optional.
M	Mandatory.
ME	Mandatory echo. Shall echo the same data as the original message.
00	Reserved for ISO use.
01	Mandatory if fees affect reconciliation.
02	Mandatory if information is available and not read electronically from the card, e.g. manual card entry.
03	Mandatory, shall contain the same data as the original authorization (1xx) or financial presentment (2xx) message.
04	Mandatory if *Amount cardholder billing* or *Amount cardholder billing fee* is present.
05	Mandatory when the reconciliation and transaction currencies differ and this data element were not provided in the request or advice message.
06	Mandatory if track data is captured at the point of service.
07	Mandatory if the *Primary account number* conforms to International Standard ISO 7812.
08	Mandatory in a replacement, previously authorised, retrieval, representment, partial reversal or partial chargeback. Mandatory in a supplementary authorization, if available.
09	Reserved for ISO use.
10	Mandatory when the forwarding institution is not the same as the institution originating the message.
11	Reserved for ISO use.
12	Mandatory if transaction affects reconciliation and this data element was not provided in the request or advice message.
13	Mandatory if the reconciliation is not in balance. Contains the value calculated by the institution sending the reconciliation advice response.
14	Mandatory if the transaction affects reconciliation and checkpoint reconciliation is used and this data element was not provided in the request or advice message.
15	Mandatory if available.
16	Mandatory in a response message if the data element was present in the original request or advice message. If present, it shall contain the same data as the original message.
17	Mandatory in the advice/notification if the data element was present in the original authorization/financial presentment request/advice notification message. If present, it shall contain the same data as the original message.
18	Mandatory if the approval code is required to be less than six characters.
19	Mandatory when the receiving institution is not the same as the final destination of the message.
20	Mandatory when the institution that processed (approved or denied) an authorization or financial presentment is not the same institution identified in the primary account number.

Table 25 (*continued*)

Code	Condition
21	Mandatory if a partial approval, declined or rejected transaction.
22	Mandatory if different from *Date and time local transaction*.
23	Mandatory if transaction affects reconciliation and checkpoint reconciliation used.
24	Mandatory if this message is used for cutover or checkpoint reconciliation.
25	Mandatory if this message is used for checkpoint reconciliation.
26	Mandatory for all processing codes except for inquiry services, i.e. processing code 3xxx.
27	Mandatory, shall echo the first two positions of the processing code in the original message.
28	Mandatory if function code indicates card administration.
29	Mandatory if function code is other than card administration.
30	Mandatory in real time transactions.
31	Mandatory if approved.
32	Mandatory if batch/file transfer control data elements do not uniquely identify the file to be loaded.
33	Mandatory once assigned, in all subsequent messages in this transaction (e.g. responses, acknowledgements, advices, notifications and instructions) and all messages in related transactions (e.g. financial presentments, chargebacks, reversals and retrievals). Shall contain the same value as original assigned.
34	Mandatory if fee collection is relevant to the life cycle of the transaction.
35	Mandatory in a network management message when *Function code* indicates a key is being delivered.
36	Mandatory in request response/advice response messages if the receiver detects an error in the request/repeat or advice/repeat messages.
37	Mandatory in the error notification message if present in the messages that contained the error condition, if the receiver can parse that message.
38	Mandatory in network management messages that denotes the start or end of a file transfer.
39	Mandatory in messages which are submitted as part of a batch or file transfer.
40	Mandatory in retrieval, chargeback and fee collection messages if provided in an original financial presentment. Shall contain the same values as used in the original transaction.
41	Mandatory if *Function code* is not 650 or 651.
42	Mandatory when the transaction is an accumulation transaction and the value applies to all transactions within the accumulated total.
43	Mandatory if *Function code* is 111
44	Mandatory if verification involves PAN
45	Mandatory if *Function code* is 109, 110, 112, or 113

7.1.3 Message flows

Message flow diagrams are included with the description of each message class to show the relationships between messages. The following symbols are used in all message flow diagrams:



7.1.4 Message errors

There are three types of errors, which may occur when processing messages.

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

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

   In both these cases, there is no response message which can be sent so the error message processing described in 8.12 should 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 6.4.7).

7.1.5 Exception message flows

If the original request/advice/repeat sequence is not responded to for whatever reason, the acquirer shall send a reversal.

If the acquirer gets no response to a 100 or 200 message and stands in for the card issuer, any resulting 110 or 220 advice shall follow the reversal transaction. If a late response is received, the acquirer shall ignore it because a reversal transaction (and possibly an advice) has been sent. Figure 11 shows the exception message flows.

There are no repeats or reversals for notification or instruction messages.

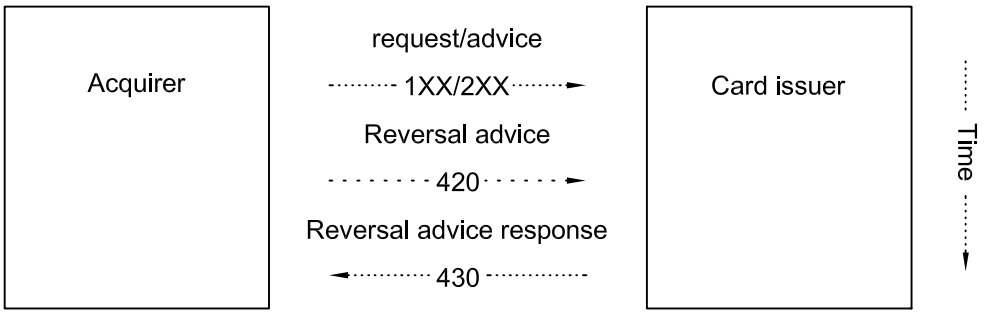


Figure 11 — Exception message flows

7.1.6 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. Figure 12 shows sequences of transactions which impact reconciliation, relating to a single instance of business at a point of service, in a full implementation of this part of ISO 8583.

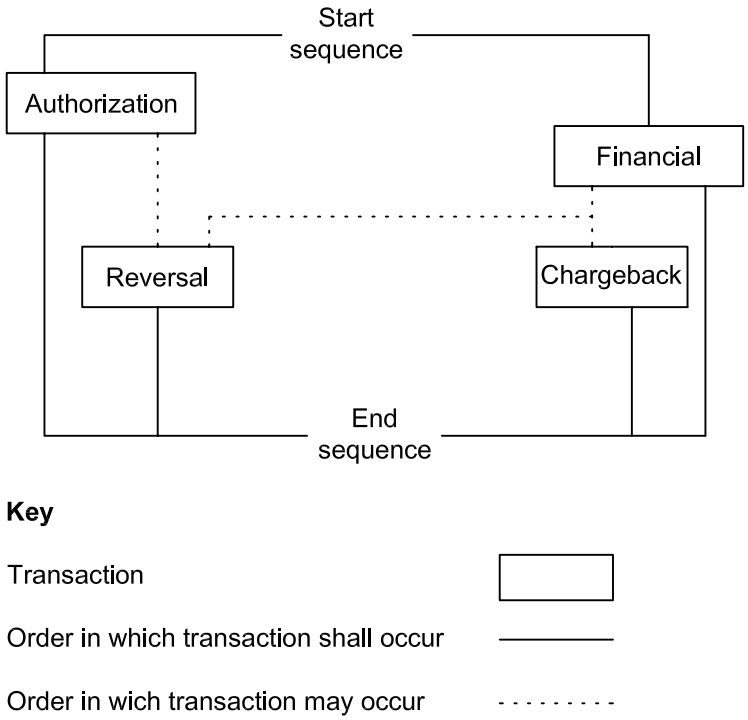


Figure 12 — Example transaction flows for 1xx, 2xx, 4xx transactions

8 Message class definitions

8.1 General

Every message begins with a three-position message type identifier. The first position of the message type identifier is the message class. Each value of the message class supports a particular activity, e.g. 1 for authorizations, etc. The second position (message function) and third position (transaction originator) of the message type identifier give further information about the message class. For clarity, each message class is described separately so that all relevant aspects can be found in one place.

Some activities (e.g. batch or file transfer) require the co-ordinated use of more than one message class. The relevant inter-message class rules are described in separate sections, which are in addition to the individual message class descriptions.

8.2 Authorization message class

8.2.1 Authorization description

An authorization is an approval or guarantee of funds given by the card issuer to the acquirer. The acquirer seeks authorization from the card issuer or advises the card issuer of authorization already given, by means of the authorization message class. An authorization is not intended to permit the application of the approved transaction amount to the cardholder's account for billing or posting.

a) The following types of authorizations are defined:

   1) original authorization, i.e. the first or only authorization;

   2) replacement authorization, i.e. when a previous authorization was approved and a subsequent authorization is required to replace the previously authorised amount because the amount of the transaction is now greater or less;

   3) resubmission authorization, i.e. to re-enter a previous authorization that was denied or rejected;

   4) supplementary authorization, i.e. when one or more previous authorizations were approved and a further authorization is required for an additional amount.

b) The following types of authorization decisions are defined:

   1) full approval, i.e. where the card issuer indicates approval of the requested amount;

   2) partial approval, i.e. where the card issuer indicates approval of an amount less than the originally requested amount;

   3) declined or rejected, i.e. where the request for approval is declined or the authorization request or advice message is rejected.

c) The *Function code* data element shall be used to indicate the type of authorization required and whether the *Amount transaction* is accurate or estimated. If the final amount is available, the *Amount transaction* shall be an accurate amount. If the final amount cannot be determined until later, the *Amount transaction* shall be an estimated amount.

8.2.2 Authorization message rules

The following applies to all authorization messages.

a) An authorization request message (100/101) shall be used when the process cannot complete at the point of service until the authorization response message (110) is received indicating the action to be taken. The use of an authorization request message does not imply that the cardholder is present, e.g. telephone or mail order.

b) An authorization request response message (110) shall be sent in response to an authorization request message (100/101). It indicates the approval or guarantee of funds or the action to be taken as specified in the *Action code* data element.

c) An authorization advice message (120/121) shall be used to inform the card issuer of an authorization that has completed at the point of service.

d) An authorization advice response message (130) shall be sent in response to an authorization advice message (120/121). An authorization advice response message (130) indicates if the card issuer accepts or rejects the transfer of financial liability.

e) An authorization notification message (140) shall be used to inform the card issuer of an authorization that has completed at the point of service. The acquirer can periodically specify (in *Batch/file transfer message control*) that the card issuer acknowledges the receipt of the most recently sent group of notification messages.

f) An authorization notification acknowledgement message (150) shall be sent in response to an authorization notification message (140) only if the authorization notification message (140) indicated (in *Batch/file transfer message control*) that an acknowledgement was required. The authorization notification acknowledgement message (150) indicates that a certain number of preceding notification messages were received.

Table 26 identifies the usage of *Amount transaction* and *Original amount transaction* within these authorization message types.

Table 26 — Amounts in types of authorization messages

In request, advice and notification messages			
Authorization type	**Function code**	**Amount transaction**	**Original amount transaction**
Original	100,101	Transaction amount	—
Replacement	102,103	New amount	Originally authorised amount
Resubmission	104,105	Transaction amount	—
Supplementary	106,107	Additional amount	Sum of previous approvals, if available
Inquiry	108	—	—
Verification	109, 110, 111, 112, 113	—	—
In response messages			
Authorization type	**Function code**	**Amount transaction**	**Original amount transaction**
Full approval	—	Transaction amount	—
Partial approval	—	Approved amount	Originally requested amount
Decline/reject	—	Zero	Originally requested amount

8.2.3 Authorization message type identifiers

Table 27 defines the message type identifiers that may be used in an authorization transaction.

Table 27 — Authorization message type identifiers

MTI	Message	Purpose	From	To	Usage
100	Authorization request	Requests an authorization	Acquirer	Card issuer	
101	Authorization request repeat				
110	Authorization request response	Carries the answer to an authorization request message	Card issuer	Acquirer	Shall be sent in response to a 100 or a 101
120	Authorization advice	Advises of an authorization carried out on behalf of the card issuer	Acquirer	Card issuer	
121	Authorization advice repeat				
130	Authorization advice response	Carries the answer to an authorization advice message	Card issuer	Acquirer	Shall be sent in response to a 120 or a 121
140	Authorization notification	Notifies of an authorization action	Acquirer	Card issuer	
150	Authorization notification acknowledgement	Acknowledges receipt of one or more authorization notification messages	Card issuer	Acquirer	Shall be sent in response to a 140 if *Batch/file transfer message control* requests acknowledgement

8.2.4 Authorization mandatory and conditional data elements

Table 28 lists the mandatory and conditional data elements used in authorization messages. The condition codes are defined in Table 25.

Table 28 — Authorization mandatory and conditional data elements

	Authorization messages	Message type identifiers					
Bit	Data element name	100 101	110	120 121	130	140	150
1	(see 5.3 for usage)						
2	Primary account number	07	16	07	16	07	
3	Processing code	M	27	M	27	M	
4	Amount transaction	26	26	26	26	26	
7	Date and time transmission	30	30	30	30	30	
11	Systems trace audit number	M	ME	M	ME	M	ME
12	Date and time local transaction	M	ME	M	ME	M	
13	Date effective	02		02		02	
14	Date expiration	02		02		02	
18	Message error indicator		36		36		
21	Transaction life cycle identification data	33	33	33	33	33	33
22	Point of service data code	M		M		M	
23	Card sequence number	02		02		02	
24	Function code	M		M		M	
25	Message reason code			M		M	
26	Merchant category code	M		M		M	
27	Point of service capability	18					
28	Date reconciliation		12		12	12	
29	Reconciliation indicator		14		14	23	
30	Amounts original	08	21	08		08	
32	Acquiring institution identification code	M	ME	M	ME	M	
33	Forwarding institution identification code	10	10	10	10	10	
35	Track 2 data	06		06		06	
36	Track 3 data	06		06		06	
38	Approval code		31		31	31	
39	Action code		M	M	M	M	
40	Service code	02		02		02	
41	Card acceptor terminal identification	15	16	15	16	15	
42	Card acceptor identification code	15	16	15	16	15	
45	Track 1 data	06		06		06	
46	Amounts fees	01	01	01	01	01	
58	Authorizing agent institution identification code		20	20		20	
59	Transport data		16		16		
68	Batch/file transfer message control					39	39
100	Receiving institution identification code	19	19	19	19	19	

8.2.5 Authorization message flows

Figure 13 shows the sequence of messages that may flow in an authorization transaction.

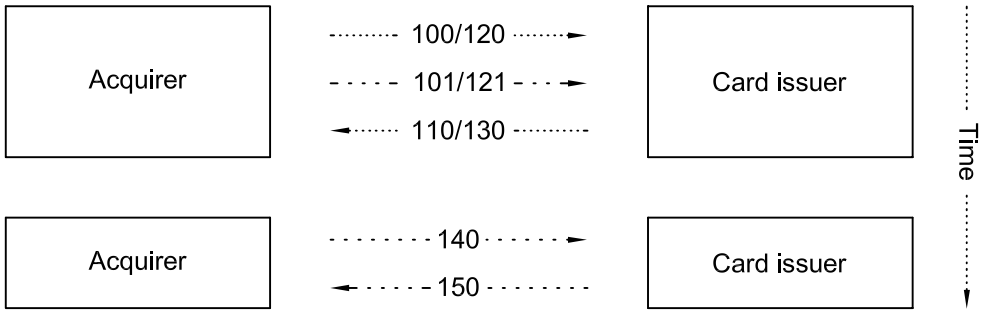


Figure 13 — Authorization message flow

8.3 Verification messages

8.3.1 Verification description

Verification messages use the request/response, advice/response and notification/acknowledgement messages from the authorization message class.

Verification messages may be used to request verification or authentication. This message class may be used for authentication of certificates, certificate management, address verification, cash transactions, cheque verification or any other transactions that do not require a subsequent financial presentment message to complete the transaction.

a) The following types of verification are defined:

   1) address verification for billing address;

   2) address verification for ship to address;

   3) certificate data verification;

   4) cheque verification;

   5) account verification.

b) The *Function code* shall be used to indicate the type of verification and which data elements are required.

c) The results of the verification will be returned in the *Action code*.

8.3.2 Verification message rules

The following applies to all verification messages:

a) An authorization request message (104/105) shall be used when a party needs information/verification/ authentication.

b) An authorization request response message (114) shall be sent in response to an authorization request message (104/105). It indicates the approval or the action to be taken as specified in the *Action code* data element.

c) An authorization advice message (124/125) shall be used to inform the receiver of a verification that has been completed on its behalf. Message reason codes are used to indicate the reason for an advice message (see Clause A.11).

d) An authorization advice response message (134) shall be sent in response to an authorization advice message (124/125). An authorization advice response message (134) indicates if the receiver accepts or rejects the verification advice transaction.

e) An authorization notification message (144) shall be used to inform the receiver of a verification that has been completed on its behalf.

f) An authorization notification acknowledgement message (154) shall be sent in response to an authorization notification message (144) only if the authorization notification message (144) indicated (in *Batch/file transfer message contro*l) that an acknowledgement was required. The authorization notification acknowledgement message (154) indicates that a certain number of preceding notification messages were received.

The *Amount transaction* data element shall not contain a value of zero. If there is no amount for a specific transaction,0 the *Amount transaction* data element shall not be present in a message.

8.3.3 Verification message type identifiers

Table 29 defines the message type identifiers, which may be used in a verification transaction.

Table 29 — Verification message type identifiers

MTI	Message	Purpose	From	To	Usage
104	Authorization request	Request for a verification	Sender	Receiver	
105	Authorization request repeat		Sender	Receiver	
114	Authorization request response	Carries the answer to a verification authorization request	Receiver	Sender	Shall be sent in response to a 104 or a 105
124	Authorization advice	Advises of a verification carried out on behalf of the receiver	Sender	Receiver	
125	Authorization advice repeat		Sender	Receiver	
134	Authorization advice response	Carries the answer to a verification authorization advice	Receiver	Sender	Shall be sent in response to a 124 or a 125
144	Authorization notification	Notifies of a verification action carried out on behalf of the receiver	Sender	Receiver	
154	Authorization notification acknowledgement	Acknowledges receipt of a verification notification	Receiver	Sender	Shall be sent in response to a 144 if *Batch/file transfer message control* requests acknowledgement

8.3.4 Verification mandatory and conditional data elements

Table 30 lists the mandatory and conditional data elements used in verification messages. The condition codes are defined in Table 25.

Table 30 — Verification mandatory and conditional data elements

	Authorization messages	Message type identifiers					
Bit	**Data element name**	**104 105**	**114**	**124 125**	**134**	**144**	**154**
1	(see 5.3 for usage)						
2	Primary account number	44	16	44	16	44	
3	Processing code	M	ME	M	ME	M	
7	Date and time transmission	30	30	30	30	30	
11	Systems trace audit number	M	ME	M	ME	M	ME
12	Date and time local transaction	M	ME	M	ME	M	
13	Date effective	02		02		02	
14	Date expiration	02		02		02	
18	Message error indicator		36		36		
21	Transaction life cycle identification data	33	33	33	33	33	33
24	Function code	M		M		M	
25	Message reason code			M		M	
27	Point of service capability	18					
33	Forwarding institution identification code	10	10	10	10	10	
34	Electronic commerce data	43		43		43	
38	Approval code		31		31	31	
39	Action code		M	M	M	M	
41	Card acceptor terminal identification	15	16	15	16	15	
42	Card acceptor identification code	15	16	15	16	15	
49	Verification data	45		45		45	
58	Authorizing agent institution identification code		20	20		20	
59	Transport data		16		16		
68	Batch/file transfer message control					39	39
93	Transaction destination identification code	M	ME	M	ME	M	
94	Transaction originator identification code	M	ME	M	ME	M	
100	Receiving institution identification code	19	19	19	19	19	

8.3.5 Verification message flows

Figure 14 shows the sequence of messages that may flow in support of a verification transaction.

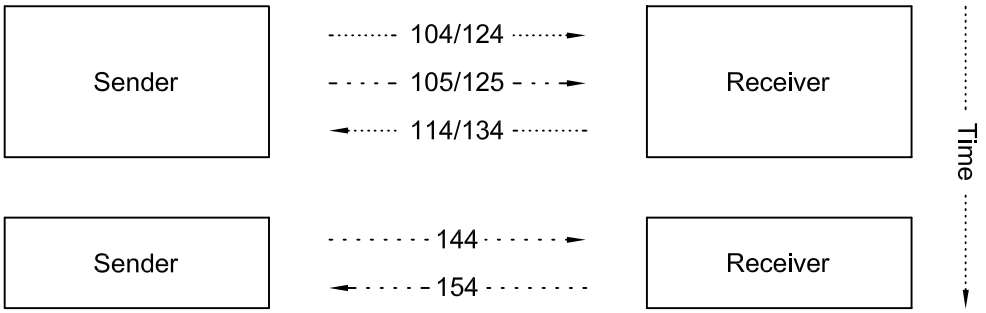


Figure 14 — Verification message flow

8.4 Financial presentment message class

8.4.1 Financial presentment description

A financial presentment permits the application of the approved transaction amount to the cardholder's account for billing or posting.

a) The following types of financial presentment are defined:

   1) first, i.e. original or only financial presentment;

   2) previously authorised, i.e. when an authorization was previously given (see Table 31);

   3) resubmission, i.e. to re-enter a previous financial presentment that was denied or rejected;

   4) Representment, i.e. to partially, or to wholly, recover funds previously charged back by the card issuer.

b) The following types of financial presentment decisions are defined:

   1) full approval, i.e. where the response from the card issuer indicates approval of the originally requested amount;

   2) partial approval, i.e. where the card issuer indicates approval of an amount less than the originally requested amount;

   3) declined or rejected, i.e. where the request for approval is declined or the financial presentment request or advice message is rejected.

c) The *Function code* shall be used to indicate the type of financial presentment and whether the *Amount transaction* is the same or different from any previously authorised amount.

8.4.2 Financial presentment message rules

The following applies to all financial presentment messages.

a) A financial presentment request message (200/201) shall be used when the process cannot complete at the point of service until the response message is received indicating the action to be taken. The use of a financial presentment request message (200) does not imply that the cardholder is present, e.g. telephone or mail order.

b) A financial presentment request response message (210) shall be sent in response to a financial presentment request message (200/201). A financial presentment request response message (210) indicates the approval or guarantee of funds or the action to be taken as specified in the *Action code* data element.

c) A financial presentment advice message (220/221) shall be used to inform the card issuer of a financial presentment that has completed at the point of service.

d) A financial presentment advice response message (230) shall be sent in response to a financial presentment advice message (220/221). A financial presentment advice response message (230) indicates if the card issuer accepts or rejects the transfer of financial liability.

e) A financial presentment notification message (240) shall be used to inform the card issuer of a financial presentment that has completed at the point of service. The acquirer can periodically specify (in *Batch/file transfer message control*) that the card issuer acknowledges the receipt of the most recently sent group of notification messages.

f) A financial presentment notification acknowledgement message (250) shall be sent in response to a financial presentment notification message (240) only if the financial presentment notification message indicated (in *Batch/file transfer message control*) that an acknowledgement was required. The financial presentment notification acknowledgement message (250) indicates that a certain number of preceding notification messages were received.

Table 31 identifies the usage of *Amount transaction* and *Original amount transaction* within these financial presentment message types.

Table 31 — Amounts in types of financial presentment transaction messages

In request, advice and notification messages			
Financial presentment type	**Function code**	**Amount transaction**	**Original amount transaction**
Original	200, 209	Transaction amount	—
Previously authorised	201, 202	New amount	Originally authorised amount
Resubmission	203, 204, 209, 210	Transaction amount	—
Representment	205, 206, 207, 208, 209, 211, 212, 213, 214	Representment amount	Amount of chargeback
Accumulation	215, 216, 217	Accumulated amount	—
In response messages			
Financial presentment type	**Function code**	**Amount transaction**	**Original amount transaction**
Full approval	—	Transaction amount	—
Partial approval	—	Approved amount	Originally requested amount
Decline/reject	—	Zero	Originally requested amount

8.4.3 Financial presentment message type identifiers

Table 32 defines the message type identifiers that may be used in a financial presentment transaction.

Table 32 — Financial presentment message type identifiers

MTI	Message	Purpose	From	To	Usage
200	Financial presentment request	Requests approval for a financial presentment transaction	Acquirer	Card issuer	
201	Financial presentment request repeat				
210	Financial presentment request response	Carries the answer to a financial presentment request message	Card issuer	Acquirer	Shall be sent in response to a 200 or a 201
220	Financial presentment advice	Advises of a financial presentment transaction carried out on behalf of the card issuer	Acquirer	Card issuer	
221	Financial presentment advice repeat				
230	Financial presentment advice response	Carries the answer to a financial presentment advice message	Card issuer	Acquirer	Shall be sent in response to a 220 or a 221
240	Financial presentment notification	Notifies of a financial presentment transaction carried out on behalf of the card issuer	Acquirer	Card issuer	
250	Financial presentment notification acknowledgement	Acknowledges receipt of one or more financial presentment notification messages	Card issuer	Acquirer	Shall be sent in response to a 240 if *Batch/file transfer message control* requested acknowledgement

8.4.4 Financial presentment mandatory and conditional data elements

Table 33 lists the mandatory and conditional data elements used in financial presentment messages. The condition codes are defined in Table 25.

Table 33 — Financial presentment mandatory and conditional data elements

Financial presentment messages		Message type identifiers					
Bit	**Data element name**	**200 201**	**210**	**220 221**	**230**	**240**	**250**
1	(see 5.3 for usage)						
2	Primary account number	07	16	07	16	07	
3	Processing code	M	27	M	ME	M	
4	Amount transaction	M	M	M	M	M	
5	Amount reconciliation		05		05	05	
7	Date and time transmission	30	30	30	30	30	
9	Conversion rate reconciliation		05		05	05	
10	Conversion rate cardholder billing	04	04	04	04	04	
11	Systems trace audit number	M	ME	M	ME	M	ME
12	Date and time local transaction	M	ME	M	ME	M	
13	Date effective	02		02		02	
14	Date expiration	02		02		02	
16	Date conversion		05		05	05	
17	Date capture			22		22	
18	Message error indicator		36		36		
21	Transaction life cycle identification data	33	33	33	33	33	33
22	Point of service data code	M		M		M	
23	Card sequence number	02		02		02	
24	Function code	M		M		M	
25	Message reason code			M		M	
26	Merchant category code	M		M		M	
27	Point of service capability	18					
28	Date reconciliation		12		12	12	
29	Reconciliation indicator		14		14	23	
30	Amounts original	08	21	08		08	
32	Acquiring institution identification code	M	ME	M	ME	M	
33	Forwarding institution identification code	10	10	10	10	10	
35	Track 2 data	06		06		06	
36	Track 3 data	06		06		06	
38	Approval code		31	31		31	
39	Action code		M	M	M	M	
40	Service code	02		02		02	
41	Card acceptor terminal identification	15	16	15	16	15	
42	Card acceptor identification code	15	16	15	16	15	
43	Card acceptor name/location	M		M		M	
45	Track 1 data	06		06		06	
46	Amounts fees	01	01	01	01	01	
58	Authorizing agent institution identification code		20	20		20	
59	Transport data		16		16		
68	Batch/file transfer message control					39	39
100	Receiving institution identification code	19	19	19	19	19	

8.4.5 Financial presentment message flows

Figure 15 shows the sequence of messages that may flow in support of a financial presentment transaction.

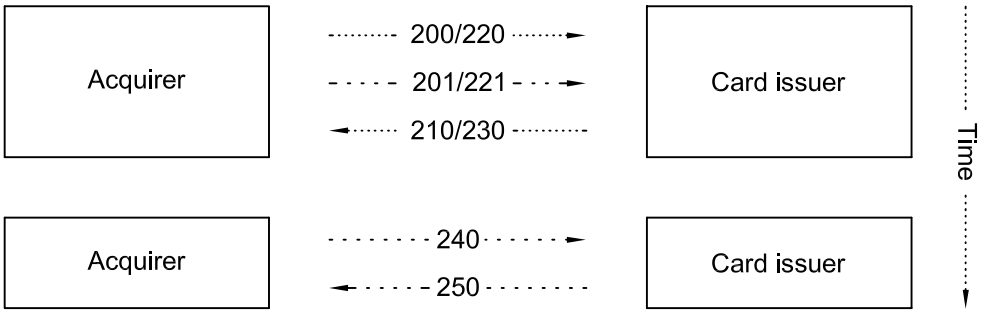


Figure 15 — Financial presentment message flows

8.5 Financial accumulation presentment

8.5.1 Financial accumulation presentment description

A financial accumulation presentment permits the application of the approved transaction amount to a specific account for billing or posting.

a) The following types of financial accumulation presentment are defined:

   1) aggregation, i.e. when the accumulation has been done at a terminal under a specific agreement between parties. It is not possible to recover the original detailed information;

   2) card issuer back up totals, i.e. when the accumulation has been done at a terminal for preventing lost details. Can only be sent as an alternative to detail collection when these have been lost. It is not possible to recover the original detailed information;

   3) truncation, i.e. when the accumulation has been done somewhere within the process, and it is possible to recover all the detailed information. The period of storage and the means of recovery are a matter for bilateral agreement.

b) The *Function code* shall be used to indicate the type of financial accumulation presentment.

8.5.2 Financial accumulation presentment message rules

Financial accumulation presentment uses the advice/response and notification/acknowledgement messages from the financial presentment message class.

The following applies to financial presentment messages when used for financial accumulation presentment.

a) A financial presentment advice message (220/221) shall be used to inform the card issuer of a financial accumulation presentment that has completed at the point of service.

b) A financial presentment advice response message (230) shall be sent in response to a financial presentment advice message (220/221). A financial presentment advice response message (230) indicates if the card issuer accepts or rejects the transfer of financial liability.

c) A financial presentment notification message (240) shall be used to inform the card issuer of a financial accumulation presentment that has completed at the point of service. The acquirer can periodically specify (in *Batch/file transfer message control*) that the card issuer acknowledges the receipt of the most recently sent group of notification messages.

d) A financial presentment notification acknowledgement message (250) shall be sent in response to a financial presentment notification message (240) only if the financial presentment notification message (240) indicated (in *Batch/file transfer message control*) that an acknowledgement was required. The financial presentment notification acknowledgement message (250) indicates that a certain number of preceding notification messages were received.

e) Financial presentment messages could apply both for several transactions to a single cardholder or several transactions from many cardholders to a single card issuer with a pooled funds account.

8.5.3 Financial accumulation presentment message type identifiers

Table 34 defines the financial presentment message type identifiers that may be used in support of a financial accumulation presentment transaction.

Table 34 — Financial accumulation presentment message type identifiers

MTI	Message	Purpose	From	To	Usage
220	Financial presentment advice	Advises of a financial accumulation presentment carried out on behalf of the card issuer	Acquirer	Card issuer	
221	Financial presentment advice repeat				
230	Financial presentment advice response	Carries the answer to a financial presentment advice message	Card issuer	Acquirer	Shall be sent in response to a 220 or a 221
240	Financial presentment notification	Notifies of a financial accumulation presentment carried out on behalf of the card issuer	Acquirer	Card issuer	
250	Financial presentment notification acknowledgement	Acknowledges receipt of one or more financial presentment notification messages	Card issuer	Acquirer	Shall be sent in response to a 240 if *Batch/file transfer message control* requested acknowledgement

8.5.4 Financial accumulation presentment mandatory and conditional data elements

Table 35 lists the mandatory and conditional data elements used in financial accumulation presentment messages when used in support of a financial accumulation presentment. The condition codes are defined in Table 25.

In accumulation messages, the *Primary account number (PAN)* may contain the card issuer's institution identification number only (in accordance with ISO 7812-1).

Table 35 — Financial accumulation presentment mandatory and conditional data elements

Financial presentment messages		Message type identifiers			
Bit	**Data element name**	**220 221**	**230**	**240**	**250**
1	(see 5.3 for usage)				
2	Primary account number	07	16	07	
3	Processing code	M	ME	M	
4	Amount transaction	M	M	M	
5	Amount reconciliation		05	05	
7	Date and time transmission	30	30	30	
9	Conversion rate reconciliation		05	05	
11	Systems trace audit number	M	ME	M	ME
12	Date and time local transaction	M	ME	M	
16	Date conversion		05	05	
18	Message error indicator		36		
21	Transaction life cycle identification data	33	33	33	33
22	Point of service data code	42		42	
24	Function code	M		M	
25	Message reason code	M		M	
26	Merchant category code	42		42	
28	Date reconciliation		12	12	
29	Reconciliation indicator		14	23	
32	Acquiring institution identification code		16	M	
33	Forwarding institution identification code	10	10	10	
37	Retrieval reference number		16		
39	Action code	M	M	M	
41	Card acceptor terminal identification	42	16	42	
42	Card acceptor identification code	42	16	42	
43	Card acceptor name/location	42		42	
46	Amounts fees	01	01	01	
58	Authorizing agent institution identification code	20		20	
59	Transport data		16		
68	Batch/file transfer message control			39	39
100	Receiving institution identification code	19	19	19	

8.5.5 Financial accumulation presentment message flows

Figure 16 shows the sequence of financial presentment messages that may flow in support of a financial accumulation presentment transaction.

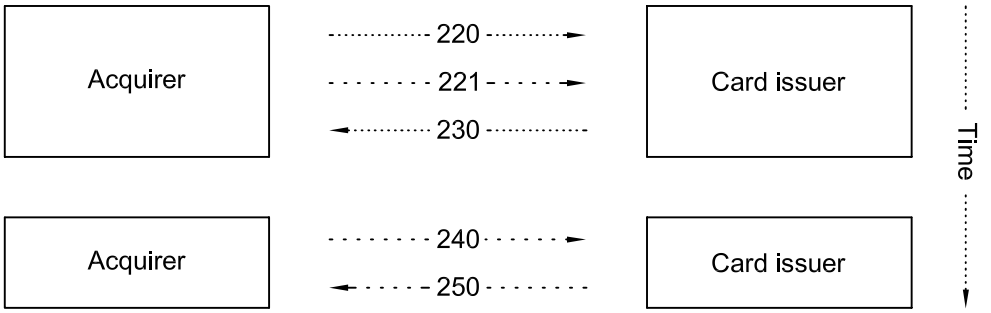


Figure 16 — Financial accumulation presentment message flows

8.6 File action message class

8.6.1 File action description

A file action is used to add, change, delete or replace a file or record or inquire into a file or perform card administration, e.g. report lost or stolen cards. The *Data record* data element shall be used to convey specific file action record or file information.

File action notification/notification acknowledgement, instruction/instruction acknowledgement messages are the key components of the file transfer process (see 8.17).

8.6.2 File action message rules

The following applies to all file action messages.

a) A file action request message (304/305) shall be used when a file action is required. The *Function code* data element shall be used to indicate the type of file action required.

b) A file action request response message (314) shall be sent in response to a file action request message (304/305). The *Action code* data element specifies the action taken or to be taken.

c) A file action advice message (324/325) shall be used to inform the receiver of a file action that has been completed.

d) A file action advice response message (334) shall be sent in response to a file action advice message (324/325). A file action advice response message (334) indicates the receiver's response to the file action advice message (324/325).

e) A file action notification message (340/344) shall be used to inform the card issuer/receiver of a file action that has been completed. The acquirer/sender can periodically specify (in *Batch/file transfer message control*) that the card issuer/receiver acknowledges the receipt of the most recently sent group of notification messages.

f) A file action notification acknowledgement message (350/354) shall be sent in response to a file action notification message (340/344) only if the file action notification message (340/344) indicated (in *Batch/file transfer message control*) that an acknowledgement was required. The file action notification acknowledgement message (350/354) indicates that a certain number of preceding notification messages were received.

g) A file action instruction message (362/364) shall be used to inform the acquirer/receiver of a file action to be completed. The card issuer/sender can periodically specify (in *Batch/file transfer message control*) that the acquirer/receiver acknowledges the receipt of the most recently sent group of instruction messages (362/364).

h) A file action instruction acknowledgement message (372/374) shall be sent in response to a file action instruction message (362/364) only if the file action instruction message (362/364) indicated (in *Batch/file transfer message control*) that an acknowledgement was required. The file action instruction acknowledgement message (372/374) indicates that a certain number of preceding instruction messages (362/364) were received.

8.6.3 File action message type identifiers

Table 36 defines the message type identifiers that may be used in a file action transaction.

Table 36 — File action message type identifiers

MTI	Message	Purpose	From	To	Usage
304	File action request	Requests a file be updated	Sender	Receiver	
305	File action request repeat				
314	File action request response	Carries the answer to a file action request message	Receiver	Sender	Shall be sent in response to a 304 or a 305
324	File action advice	Advises of what was added, deleted or replaced in a file or record	Sender	Receiver	
325	File action advice repeat				
334	File action advice response	Carries the answer to a file action advice message	Receiver	Sender	Shall be sent in response to a 324 or a 325
340	File action notification	Notifies details of a file transfer action to be undertaken	Acquirer	Card issuer	
344	File action notification	Notifies of a file action or file transfer action to be undertaken	Sender	Receiver	
350	File action notification acknowledgement	Acknowledgement of one or more file action notification messages	Card issuer	Acquirer	Shall be sent in response to a 340 if *Batch/file transfer message control* requested acknowledgement
354	File action notification acknowledgement	Acknowledgement of one or more file action notification messages	Receiver	Sender	Shall be sent in response to a 344 if *Batch/file transfer message control* requested acknowledgement
362	File action instruction	Instruction regarding file transfer actions	Card issuer	Acquirer	
364	File action instruction	Instruction regarding file transfer actions	Sender	Receiver	
372	File action instruction acknowledgement	Acknowledgement of one or more file action instruction messages	Acquirer	Card issuer	Shall be sent in response to a 362 if *Batch/file transfer message control* requested acknowledgement
374	File action instruction acknowledgement	Acknowledgement of one or more file action instruction messages	Receiver	Sender	Shall be sent in response to a 364 if *Batch/file transfer message control* requested acknowledgement

8.6.4 File action mandatory and conditional data elements

Table 37 lists the mandatory and conditional data elements used in file action messages. The condition codes are defined in Table 25.

Table 37 — File action mandatory and conditional data elements

File action messages		Message type identifiers				
Bit	**Data element name**	**304 305**	**314**	**324 325**	**334**	**344**
1	(see 5.3 for usage)					
2	Primary account number	28	16	28	16	28
7	Date and time transmission	30	30	30	30	30
11	Systems trace audit number	M	ME	M	ME	M
12	Date and time local transaction	M	ME	M	ME	M
18	Message error indicator		36		36	
24	Function code	M		M		M
25	Message reason code	28		28		28
33	Forwarding institution identification code	10	10	10	10	10
39	Action code		M	M	M	M
59	Transport data		16		16	
72	Data record	29		29		29
93	Transaction destination institution identification code	M	ME	M	ME	M
94	Transaction originator institution identification code	M	ME	M	ME	M
100	Receiving institution identification code	19	19	19	19	19
101	File name	29		29		29

Table 38 lists the mandatory and conditional data elements used in file action messages, which are specific to file transfer. The condition codes are defined in Table 25.

Table 38 — File action mandatory and conditional data elements specific to file transfer

File action messages		Message type identifiers			
Bit	**Data element name**	**340 344**	**350 354**	**362 364**	**372 374**
1	(see 5.3 for usage)				
11	Systems trace audit number	M	ME	M	ME
12	Date and time local transaction	M		M	
24	Function code	M		M	
25	Message reason code	M		M	
33	Forwarding institution identification code	10		10	
39	Action code	M		M	
68	Batch/file transfer message control	M	ME	M	ME
69	Batch/file transfer control data	M		M	
70	File transfer description data	M		M	
72	Data record	M		M	
93	Transaction destination institution identification code	M	ME	M	ME
94	Transaction originator institution identification code	M	ME	M	ME
100	Receiving institution identification code	19		19	
101	File name	32		32	

8.6.5 File action message flows

Figure 17 shows the sequence of messages that may flow in support of a file action request or advice messages.

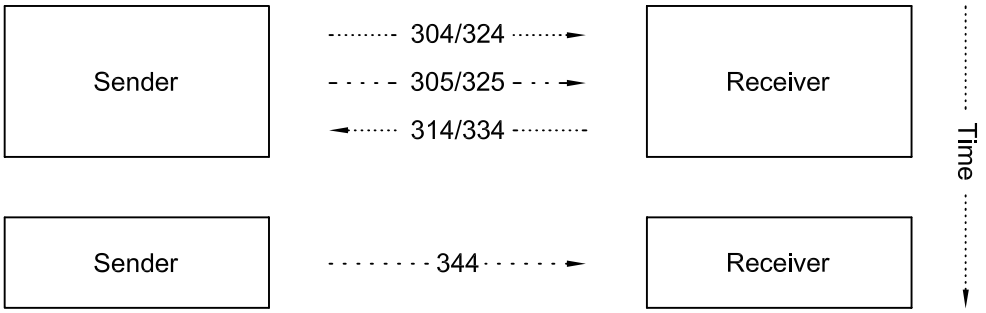


Figure 17 — File action message flows

Figure 18 shows the sequence of messages that may flow in support of file action notification or instruction messages.

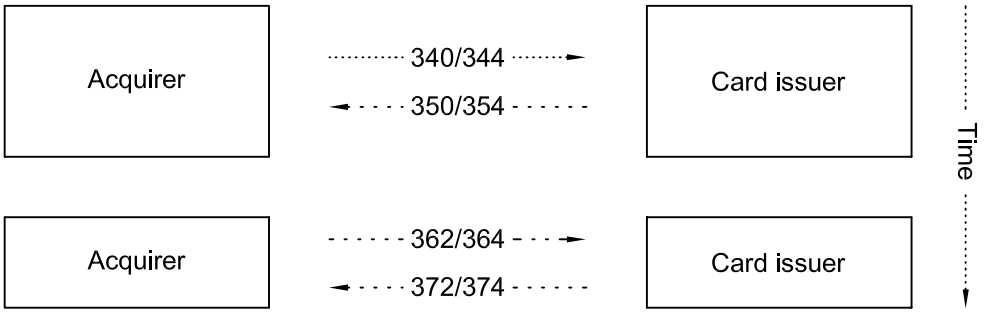


Figure 18 — File action message flows for file transfer

8.7 Reversal message class

8.7.1 Reversal description

A reversal is the partial or complete nullification of the effects of a previous authorization, financial presentment, or financial accumulation presentment that cannot be processed as instructed, i.e. is undeliverable, is cancelled or the acquirer times out waiting for a response (see 7.1.5).

The following applies to all reversals.

a) A reversal shall not be reversed.

b) Only 1xx or 2xx message classes shall be reversed.

c) Table 39 shows 2xx financial presentments that are not reversals.

Table 39 — Financial presentments that are not reversals

Function	Processing code	Function code
Adjustment	02, 22	200, 209
Return	20	200, 209
Representment	—	205, 206, 207, 208, 211, 212, 213, 214

8.7.2 Reversal message rules

Reversals shall use only the advice or notification messages since the activity has already occurred.

The following applies to all reversal messages:

a) A reversal advice message (420/421) or reversal notification message (440) shall be sent by an acquirer whenever a previous authorization, financial presentment or financial presentment accumulation message cannot be processed as instructed, i.e., is undeliverable, is cancelled, or the acquirer times out waiting for a response, in which case:

   1) the *Message reason code* data element is used to indicate the reason for the reversal (see Clause A.11);

   2) the *Amount transaction* data element in a reversal advice or notification message shall contain the amount to be reversed and shall be less than or equal to the original *Amount transaction* (see Table 40);

   3) the *Processing code* shall be the same as presented in the original request or advice message. If the original request or advice message was a debit, the reversal also indicates debit. if the original request or advice message was a credit, the reversal also indicates a credit.

b) A reversal advice response message (430) shall be sent in response to a reversal advice message (420/421). A reversal advice shall not be declined except for specific reasons as defined in Clause A.1.

c) A reversal notification acknowledgement message (450) shall be sent in response to a reversal notification message (440) only if the reversal notification message indicated (in *Batch/file transfer message control*) that acknowledgement was required. The reversal notification acknowledgement message (450) indicates that a certain number of preceding notification messages were received.

Table 40 — Amounts in reversal messages

Type of reversal	Amount transaction	Original amount transaction
Full	Amount reversed	—
Partial	Amount reversed	Original transaction amount

8.7.3 Reversal message type identifiers

Table 41 defines the message type identifiers that may be used in a reversal transaction.

Table 41 — Reversal message type identifiers

MTI	Message	Purpose	From	To	Usage
420	Reversal advice	Reverses an earlier authorization or financial presentment message	Acquirer	Card issuer	
421	Reversal advice repeat				
430	Reversal advice response	Carries the answer to a reversal advice message	Card issuer	Acquirer	Shall be sent in response to a 420 or a 421
440	Reversal notification	Notifies of a reversal action	Acquirer	Card issuer	
450	Reversal notification acknowledgement	Acknowledges receipt of one or more reversal notification messages	Card issuer	Acquirer	Shall be sent in response to a 440 if *Batch/file transfer message control* requested acknowledgement

8.7.4 Reversal mandatory and conditional data elements

Table 42 lists the mandatory and conditional data elements used in reversal messages. The condition codes are defined in Table 25.

Table 42 — Reversal mandatory and conditional codes

Reversal messages		Message type identifiers			
Bit	**Data element name**	**420 421**	**430**	**440**	**450**
1	(see 5.3 for usage)				
2	Primary account number	07	16	07	
3	Processing code	03	16	03	
4	Amount transaction	M	M	M	
5	Amount reconciliation		05	05	
7	Date and time transmission	30	30	30	
9	Conversion rate reconciliation		05	05	
10	Conversion rate cardholder billing	04	04	04	
11	Systems trace audit number	M	ME	M	ME
12	Date and time local transaction	M	ME	M	
16	Date conversion		05	05	
18	Message error indicator		36		
21	Transaction life cycle identification data	33	33	33	33
24	Function code	M		M	
25	Message reason code	M		M	
28	Date reconciliation		12	12	
29	Reconciliation indicator		14	23	
30	Amounts original	08		08	
32	Acquiring institution identification code	M	ME	M	
33	Forwarding institution identification code	10	10	10	
39	Action code		M	M	
41	Card acceptor terminal identification	15	16	15	
42	Card acceptor identification code	15	16	15	
46	Amounts fees	01	01	01	
56	Original data elements	M		M	
58	Authorizing agent institution identification code	17		17	
59	Transport data		16		
68	Batch/file transfer message control			39	39
100	Receiving institution identification code	19	19	19	

8.7.5 Reversal message flows

Figure 19 shows the sequence of messages that may flow in support of a reversal transaction.

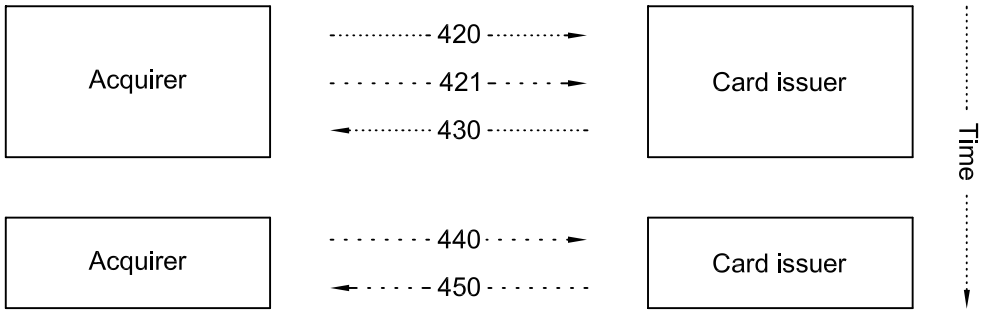


Figure 19 — Reversal message flows

8.8 Chargeback message class

8.8.1 Chargeback description

A chargeback is the partial or complete nullification of a previous financial presentment or financial accumulation presentment when the card issuer determines that a customer dispute exists, or that an error or a violation of rules has been committed.

The following applies to all chargebacks.

a) A card issuer only shall initiate a chargeback.

b) A chargeback shall be generated only if the original transaction had financial impact on the cardholder's net position. A chargeback shall not be used to cancel a balance inquiry, account transfer or authorization.

c) To cancel, either partially or completely, a previous chargeback that was submitted in error, the card issuer shall initiate a subsequent chargeback containing *Original data elements* pointing to the previous chargeback transaction.

d) If the transaction that is being charged back requires a response, this response message shall be sent before the chargeback transaction is generated.

e) A card issuer may charge back an original transaction plus any subsequent representment(s) submitted by the acquirer. A separate chargeback transaction shall be used for each.

f) This part of ISO 8583 specifies no limits on the timeframe or the number of chargebacks and representments that may be exchanged between an acquirer and card issuer.

8.8.2 Chargeback message rules

Chargebacks shall use only the advice or notification message since the activity has already occurred.

The following applies to all chargeback messages.

a) A chargeback advice message (422/423), or chargeback notification message (442), shall only be sent when the card issuer determines that a chargeback is appropriate and valid, in which case:

   1) the *Message reason code* data element is used to indicate the reason for the chargeback (see Clause A.11);

2) the *Amount transaction* data element in a chargeback advice or notification message shall be the amount to be charged back and shall be less than or equal to the original *Amount transaction* (see Table 43);

3) the *Processing code* value shall be the same as the transaction that is being charged back. If the original transaction was a debit, the chargeback message shall also indicate a debit. If the original transaction was a credit, the chargeback message shall also indicate a credit.

b) A chargeback advice response message (432) shall be sent in response to a chargeback advice message (422/423). A chargeback shall not be declined except for specific reasons as defined in Clause A.1, although the acquirer may represent the original transaction.

c) A chargeback notification acknowledgement message (452) shall be sent in response to a chargeback notification message (442) only if the chargeback notification message (442) indicated (in *Batch/file transfer message control*), that acknowledgement was required. The chargeback notification acknowledgement message (452) indicates that a certain number of preceding notification messages were received.

Table 43 — Amounts in chargeback messages

Type of chargeback	Amount transaction	Original amount transaction
Full	Amount charged back	—
Partial	Amount charged back	Original transaction amount

8.8.3 Chargeback message type identifiers

Table 44 defines the message type identifiers that may be used in a chargeback transaction.

Table 44 — Chargeback message type identifiers

MTI	Message	Purpose	From	To	Usage
422	Chargeback advice	Charges back an earlier financial presentment	Card issuer	Acquirer	
423	Chargeback advice repeat				
432	Chargeback advice response	Carries the answer to a chargeback advice	Acquirer	Card issuer	Shall be sent in response to a 422 or a 423
442	Chargeback notification	Notifies of a chargeback action	Card issuer	Acquirer	
452	Chargeback notification acknowledgement	Acknowledges receipt of one or more chargeback notifications	Acquirer	Card issuer	Shall be sent in response to a 442 if *Batch/file transfer message control* requested acknowledgement

8.8.4 Chargeback mandatory and conditional data elements

Table 45 lists the mandatory and conditional data elements used in chargeback messages. The condition codes are defined in Table 25.

Table 45 — Chargeback mandatory and conditional data elements

Chargeback messages		Message type identifiers			
Bit	**Data element name**	**422 423**	**432**	**442**	**452**
1	(see 5.3 for usage)				
2	Primary account number	07	16	07	
3	Processing code	M	ME	M	
4	Amount transaction	M	M	M	
5	Amount reconciliation		05	05	
7	Date and time transmission	30	30	30	
9	Conversion rate reconciliation		05	05	
11	Systems trace audit number	M	ME	M	ME
12	Date and time local transaction	M	ME	M	
16	Date conversion		05	05	
18	Message error indicator		36		
21	Transaction life cycle identification data	33	33	33	33
24	Function code	M		M	
25	Message reason code	M		M	
26	Merchant category code	M		M	
28	Date reconciliation		12	12	
29	Reconciliation indicator		14	23	
30	Amounts original	08		08	
31	Acquirer reference number	40		40	
32	Acquiring institution identification code	M	ME	M	
33	Forwarding institution identification code	10	10	10	
37	Retrieval reference number	17		17	
39	Action code		M	M	
43	Card acceptor name/location	M		M	
46	Amounts fees	01	01	01	
56	Original data elements	M		M	
59	Transport data		16		
68	Batch/file transfer message control			39	39
100	Receiving institution identification code	19	19	19	

8.8.5 Chargeback message flows

Figure 20 shows the sequence of messages that may flow in support of a chargeback transaction.

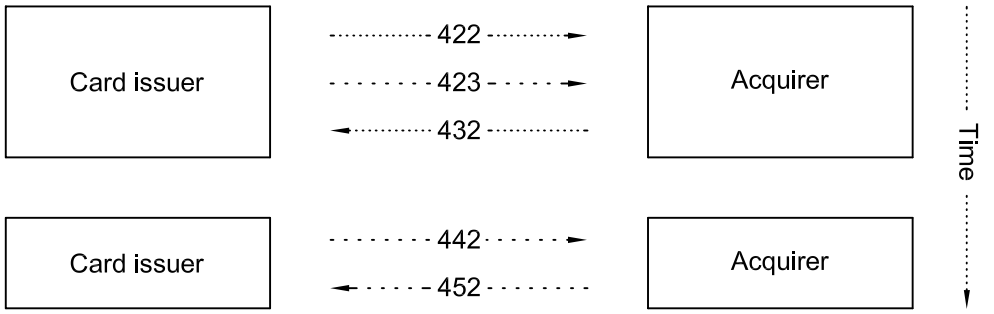


Figure 20 — Chargeback message flows

8.9 Reconciliation message class

8.9.1 Reconciliation description

Reconciliation is the exchange of totals between two institutions (acquirer, card issuer or their agents) to reach agreement on financial totals.

The calculation of *Amount net reconciliation* shall be achieved by netting the debit and credit amounts in the reconciliation message (see Table 48).

Reconciliation in multiple currencies shall use a separate reconciliation message for each currency.

Two types of reconciliation are defined.

a) A checkpoint reconciliation shall be indicated by the *Function code* “501” or “503”:

   1) a checkpoint reconciliation period shall be identified with the *Reconciliation indicator*. The *Date reconciliation* remains unchanged in a checkpoint reconciliation;

   2) a checkpoint reconciliation message may be preceded by a network management message (8xx) indicating checkpoint and the next *Reconciliation indicator*. Any message initiated after completion of the network management message indicating a checkpoint shall contain the new *Reconciliation indicator* (see 8.9.7).

b) A final reconciliation shall be indicated by the *Function code* “500” or “502”:

   1) a final reconciliation period shall be identified with the *Date reconciliation*. A final reconciliation period may contain any number of checkpoint reconciliation periods;

   2) the final reconciliation amounts shall be the sum of all the financial amounts from the individual transactions identified with the same *Date reconciliation*. The final reconciliation counts shall be the number of transactions identified with the same *Date reconciliation*;

   3) a final reconciliation message may be preceded by a network management message (8xx) indicating cutover, along with the new *Date reconciliation* data element. Any message initiated after completion of the network management message indicating cutover shall contain the new *Date reconciliation* (see 8.9.7).

8.9.2 Reconciliation message rules

The following applies to all reconciliation messages.

a) A reconciliation request message (500/501 or 502/503) shall be sent to request reconciliation totals (number and value).

b) A reconciliation request response message (510/512) shall be sent in response to a reconciliation request message (500/501 or 502/503). A reconciliation request response message (510/512) shall contain the requested totals, if available, and shall indicate one of the following results:

   1) totals provided, i.e. all amounts and number data elements shall be returned with the values from the institution sending the reconciliation request response message;

   2) totals not available, i.e. all amount and number data elements shall be returned with zero values;

   3) the totals shall be used to indicate the originating institution's position as either acquirer or card issuer (but not both) as defined by the message type identifier.

c) A reconciliation advice message (520/521 or 522/523) shall be sent to seek the confirmation of totals (number and value).

d) A reconciliation advice response message (530/532) shall be sent in response to a reconciliation advice message (520/521 or 522/523) and shall indicate one of the following results:

   1) reconciled, in balance, i.e. only the *Amount net reconciliation* data element shall be returned in the reconciliation advice response message;

   2) reconciled, out of balance, i.e. all amount and number data elements shall be returned with the values from the institution sending the reconciliation advice response message;

   3) totals not available, i.e. all amount and number data elements shall be returned with zero values.

e) A reconciliation notification message (540/542) shall be used to provide totals (number and value). The totals contained in the reconciliation notification message (540/542) shall indicate an originating institution's position as either an acquirer or card issuer (but not both) as defined by the message type identifier. The reconciliation notification message may require acknowledgement.

f) A reconciliation notification acknowledgement message (550/552) shall be sent in response to a reconciliation notification message (540/542) only if the reconciliation notification message indicated (in *Batch/file transfer message control*) that an acknowledgement was required and shall indicate one of the following results:

   1) reconciled, in balance, i.e. only the *Amount net reconciliation* data element shall be returned in the Reconciliation notification acknowledgement message;

   2) reconciled, out of balance, i.e. all amount and number data elements shall be returned with the values from the institution sending the reconciliation notification acknowledgement message;

   3) totals not available, i.e. all amount and number data elements shall be returned with zero values.

8.9.3 Reconciliation message type identifiers

Table 46 defines the message type identifiers that may be used in a reconciliation transaction.

Table 46 — Reconciliation message type identifiers

MTI	Message	Purpose	From	To	Usage
500	Acquirer reconciliation request	Acquirer requests the card issuer's totals (number and value) for the last reconciliation period	Acquirer	Card issuer	
501	Acquirer reconciliation request repeat				
510	Acquirer reconciliation request response	Carries the card issuer's totals (number and value) in response to a reconciliation request message	Card issuer	Acquirer	Shall be sent in response to a 500 or a 501
520	Acquirer reconciliation advice	Advises of acquirer's totals (number and value) for the last reconciliation period	Acquirer	Card issuer	
521	Acquirer reconciliation advice repeat				
530	Acquirer reconciliation advice response	Carries the answer to a reconciliation advice message	Card issuer	Acquirer	Shall be sent in response to a 520 or a 521
540	Acquirer reconciliation notification	Notifies the card issuer of the acquirer's totals (number and value) for the last reconciliation period	Acquirer	Card issuer	
550	Acquirer reconciliation notification acknowledgement	Acknowledges one or more acquirer reconciliation notification messages	Card issuer	Acquirer	Shall be sent in response to a 540 if *Batch/file transfer message control* requested an acknowledgement
502	Card issuer reconciliation request	Card issuer requests acquirer's totals (number and value) for the last reconciliation period	Card issuer	Acquirer	
503	Card issuer reconciliation request repeat				
512	Card issuer reconciliation request response	Carries acquirer's totals (number and value) in response to a reconciliation request message	Acquirer	Card issuer	Shall be sent in response to a 502 or a 503
522	Card issuer reconciliation advice	Advises of the card issuer's totals (number and value) for the last reconciliation period	Card issuer	Acquirer	
523	Card issuer reconciliation advice repeat				
532	Card issuer reconciliation advice response	Carries the answer to a reconciliation advice message	Acquirer	Card issuer	Shall be sent in response to a 522 or a 523
542	Card issuer reconciliation notification	Notifies the acquirer of the card issuer's totals (number and value) for the last reconciliation period	Card issuer	Acquirer	
552	Card issuer reconciliation notification acknowledgement	Acknowledges one or more card issuer reconciliation notification messages	Acquirer	Card issuer	Shall be sent in response to a 542 if *Batch/file transfer message control* requested an acknowledgement

8.9.4 Reconciliation mandatory and conditional data elements

Table 47 lists the mandatory and conditional data elements used in reconciliation messages. The condition codes are defined in Table 25.

In fee reconciliation messages, the *Primary account number (PAN)* contains the card issuer's institution identification number only (in accordance with ISO 7812-1).

Table 47 — Reconciliation mandatory and conditional data elements

Reconciliation messages		Message type identifiers					
Bit	Data element name	500 501	510	520 521	530	540	550
		502 503	512	522 523	532	542	552
1	(see 5.3 for usage)						
2	Primary account number	M	ME	M	ME	M	
7	Date and time transmission	30	30	30	30	30	
11	Systems trace audit number	M	ME	M	ME	M	ME
12	Date and time local transaction	M	ME	M	ME	M	
18	Message error indicator		36		36		
21	Transaction life cycle identification data	33	33	33	33	33	33
24	Function code	M		M		M	
28	Date reconciliation	M	ME	M	ME	M	
29	Reconciliation indicator	23	16	23	16	23	
32	Acquiring institution identification code	M	ME	M	ME	M	
33	Forwarding institution identification code	10	10	10	10	10	
39	Action code		M		M		
59	Transport data		16		16		
68	Batch/file transfer message control					39	39
74	Reconciliation data primary		M	M	13	M	
97	Amount net reconciliation		M	M	M	M	
100	Receiving institution identification code	19	19	19	19	19	
109	Reconciliation fee amounts credit		01	01	13	01	
110	Reconciliation fee amounts debit		01	01	13	01	

8.9.5 Reconciliation message flows

8.9.5.1 Acquirer reconciliation

Figure 21 shows the sequence of messages that may flow in support of an acquirer reconciliation transaction.

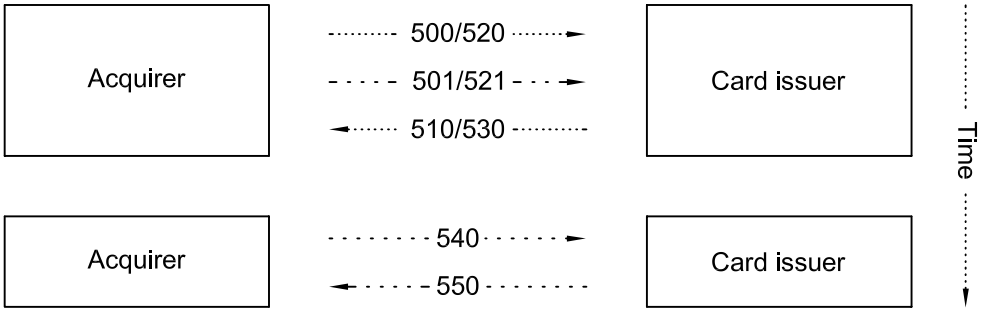


Figure 21 — Acquirer reconciliation message flows

8.9.5.2 Card issuer reconciliation

Figure 22 shows the sequence of messages that may flow in support of a card issuer reconciliation transaction.

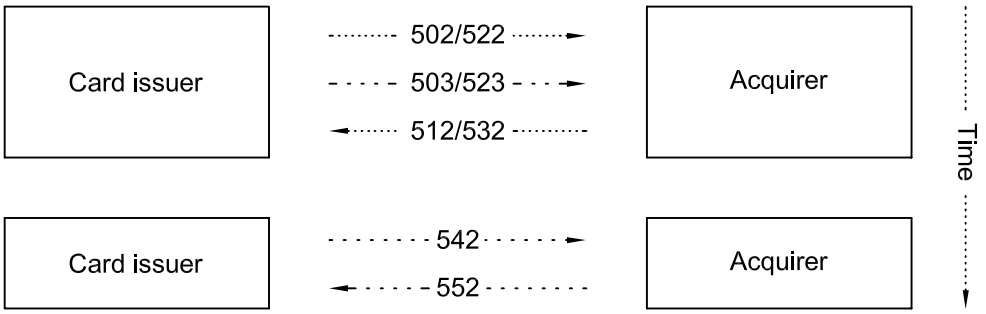


Figure 22 — Card issuer reconciliation message flows

8.9.6 Reconciliation calculation

All amounts in the reconciliation messages are in the currency of reconciliation. The “x” portion of the fee data elements defined as xn 12 shall contain a “D” if the fee is due to the acquirer or a “C” if the fee is due from the acquirer.

For the purposes of Table 48, it is assumed that the transaction currency is the same currency as that of reconciliation. If the currency of reconciliation is different from that of the transaction, then the reconciliation amounts and fees shall be added to the *Reconciliation data primary* elements in place of the transaction amounts and fees.

The first portion of Table 48 identifies how the specified amount data elements from individual authorization, financial presentments, reversal, chargeback and fee collections shall be computed for reconciliation. The second portion identifies how the reconciliation counts shall be accumulated for inquiries, authorizations, payments, transfers, financial presentments, reversals, chargebacks and fee collections. A repeat (xx1 or xx3) message is not added to reconciliation totals unless the original message was not received.

The following steps shall be taken to calculate the *Amount net reconciliation*.

a) From the sum of:

1) reconciliation fee amounts credit;

2) credits amount;

3) credits reversal amount;

4) credits chargeback amount.

b) Substract the sum of:

1) reconciliation fee amounts debit;

2) debits amount;

3) debits reversal amount;

4) debits chargeback amount.

If the *Amount net reconciliation*, after completing the foregoing computation, results in a negative value, the character “D” shall be inserted into the “x” portion of *Amount net reconciliation*, otherwise, the character “C” shall be inserted in the “x” portion.

Table 48 — Reconciliation calculation

Amount calculations					
MTI		**"x" portion of amounts fees**	**Add data element**	**To data element**	**Bit**
1xx, 2xx,4xx, 7xx		C	Amount fee of amounts	Amount fee total of reconciliation fee	109-2
1xx, 2xx, 4xx, 7xx		D		Amount fee total of reconciliation fee	110-2
MTI	**Original MTI**	**Processing code**	**Add data element**	**To data element**	**Bit**
2xx	—	00-19	Amount transaction	Debits amount	74-7
2xx	—	20-29		Credits amount	74-1
4x0	2xx	00-19		Credits reversal amount	74-5
4x0	2xx	20-29		Debits reversal amount	74-11
4x2	—	00-19		Credits chargeback amount	74-3
4x2	—	20-29		Debits chargeback amount	74-9
4x2	4x2	00-19		Debits chargeback amount	74-9
4x2	4x2	20-29		Credits chargeback amount	74-3
Count calculations					
MTI		**"x" portion of amounts fees**	**Add**	**To data element**	**Bit**
1xx, 2xx, 4xx		C	Numeric value of 1	Number fee total of reconciliation fee amounts credit	109-3
1xx, 2xx, 4xx		D		Number fee total of reconciliation fee amounts debit	110-3
MTI	**Original MTI**	**Processing Code**	**Add**	**To data element**	**Bit**
1xx	—	00-29	Numeric value of 1	Authorizations number	75-1
1xx	—	30-39		Inquiries number	75-4
2xx	—	00-19		Debits number	74-8
2xx	—	20-29		Credits number	74-2
2xx	—	40-49		Transfers number	75-8
2xx	—	50-59		Payments number	75-6
4x0	2xx	00-19		Credits reversal number	74-6
4x0	2xx	20-29		Debits reversal number	74-12
4x2	2xx	00-19		Credits chargeback number	74-4
4x2	2xx	20-29		Debits chargeback number	74-10
4x2	4x2	00-19		Debits chargeback number	74-10
4x2	4x2	20-29		Credits chargeback number	74-4
4x0	1xx	00-29		Authorizations reversal number	75-2
4xx	—	30-39		Inquiries reversal number	75-3
4xx	—	40-49		Transfers reversal number	75-9
4xx	—	50-59		Payments reversal number	75-7
7xx	—	n/a		Fee collections number	75-5

8.9.7 Reconciliation transaction flows

If the network management messages are used to initiate cutover, the following applies.

a) The receiver of the network management request or advice message indicating cutover or checkpoint shall initiate new transactions with the new *Date reconciliation* or *Reconciliation indicator* (as indicated in the network management request or advice message) only after sending the network management response message.

b) The sender of the network management request or advice message indicating cutover or checkpoint shall initiate new transactions with the new *Date reconciliation* or *Reconciliation indicator* only after receiving the network management response message.

c) The reconciliation request or advice message shall be sent with the previous *Date reconciliation* or *Reconciliation indicator* only after receiving (or sending) the network management response message (see Figure 23).

d) Reconciliation dates are in CCYYMMDD format.

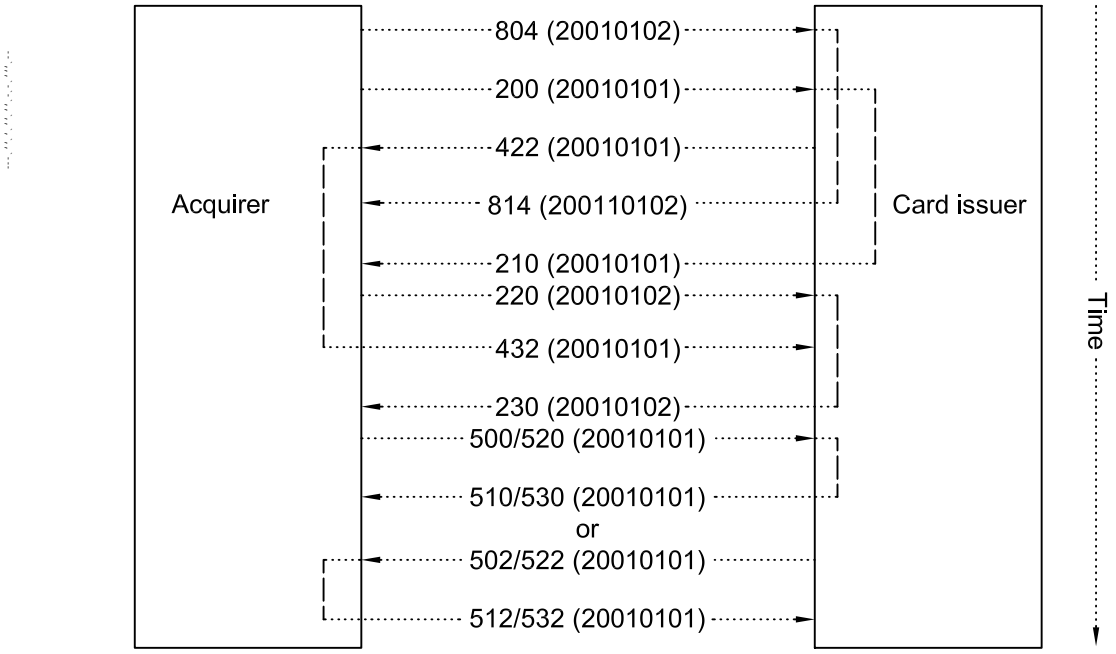


Figure 23 — Reconciliation example

8.10 Administrative message class

8.10.1 Administrative description

Administrative activity is anything that supports the business and technical infrastructure between financial institutions and their agents. The *Function code* is used to indicate the type of administrative activity that is required (see Clause A.9).

8.10.2 Administrative message rules

The following applies to all administrative messages.

a) An administrative request, advice, or notification message (604/605 or 624/625 or 644) may be initiated by either the sender or receiver as needed.

b) An administrative request response message (614) shall be sent in response to an administrative request message (604/605). The administrative request response message (614) indicates receipt of the administrative request message (604/605).

c) An administrative advice response message (634) shall be sent in response to an administrative advice message (624/625) to indicate receipt of the administrative advice message (624/625).

d) An administrative notification acknowledgement message (654) shall be sent in response to an administrative notification message (644) only if the administrative notification message (644) indicated (in *Batch/file transfer message control*) that acknowledgement was required. The administrative notification acknowledgement message (654) indicates that a certain number of preceding notification messages were received.

8.10.3 Administrative message type identifiers

Table 49 defines the message type identifiers that may be used in an administrative transaction.

Table 49 — Administrative message type identifiers

MTI	Message	Purpose	From	To	Usage
604	Administrative request	Requests information to support the interchange network	Sender	Receiver	
605	Administrative request repeat				
614	Administrative request response	Carries the answer to an administrative request message	Receiver	Sender	Shall be sent in response to a 604 or a 605
624	Administrative advice	Advises of information to support the interchange network	Sender	Receiver	
625	Administrative advice repeat				
634	Administrative advice response	Carries the answer to an administrative advice message	Receiver	Sender	Shall be sent in response to a 624 or a 625
644	Administrative notification	Notifies of an administrative action	Sender	Receiver	
654	Administrative notification acknowledgement	Acknowledges receipt or one or more administrative notification messages	Receiver	Sender	Shall be sent in response to a 644 if *Batch/file transfer message control* requested acknowledgement

8.10.4 Administrative mandatory and conditional data elements

Table 50 lists the mandatory and conditional data elements used in administrative messages. The condition codes are defined in Table 25.

Table 50 — Administrative mandatory and conditional data elements

Administrative messages		Message type identifiers					
Bit	**Data element name**	**604 605**	**614**	**624 625**	**634**	**644**	**654**
1	(see 5.3 for usage)						
7	Date and time transmission	30	30	30	30	30	
11	Systems trace audit number	M	ME	M	ME	M	ME
12	Date and time local transaction	M	ME	M	ME	M	
18	Message error indicator		36		36		
24	Function code	M		M		M	
33	Forwarding institution identification code	10	10	10	10	10	
39	Action code		M	M	M	M	
59	Transport data		16		16		
68	Batch/file transfer message control					39	39
72	Data record	M		M		M	
93	Transaction destination institution identification code	M	ME	M	ME	M	
94	Transaction originator institution identification code	M	ME	M	ME	M	
100	Receiving institution identification code	19	19	19	19	19	

8.10.5 Administrative message flows

Figure 24 shows the sequence of messages that may flow in support of an administrative transaction.

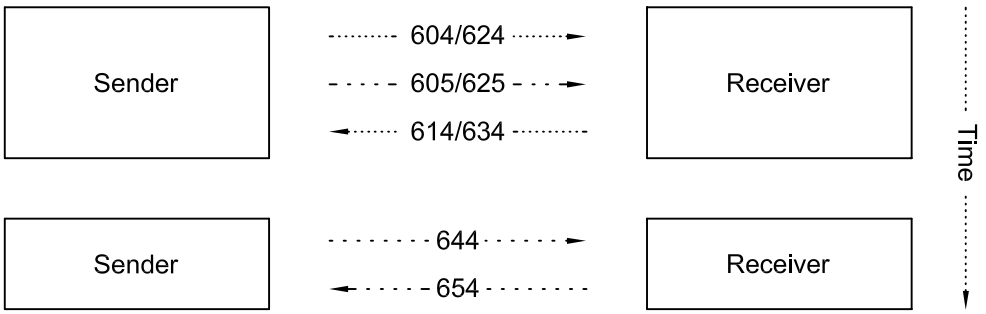


Figure 24 — Administrative message flows

8.11 Retrieval and retrieval fulfilment

8.11.1 Retrieval and retrieval fulfilment description

A retrieval is the activity (by the card acceptor, acquirer or relevant agent) needed to support a card issuer who has determined that a transaction information document needs to be examined before a potential chargeback is sent or to satisfy another need of the card issuer or cardholder. The *Message reason code* is used to indicate the specific reason for the retrieval (Clause A.11). Only a card issuer can send a retrieval request.

A retrieval fulfilment is where an acquirer has successfully retrieved the requested information or where the reason it was not provided is advised. The *Function code* is used to indicate the result to the card issuer. Only an acquirer can send a retrieval fulfilment.

8.11.2 Retrieval and retrieval fulfilment message rules

Retrieval uses the request/response and notification/acknowledgement messages from the administrative message class. Retrieval fulfilment uses the notification/acknowledgement messages from the administrative message class.

The following applies to administrative messages when used for retrieval.

a) An administrative request message (602/603) or administrative instruction message (662) shall be sent when the card issuer requires sight of a transaction information document.

b) An administrative request response message (612) shall be sent in response to an administrative request message (602/603). The administrative request response message (612) indicates receipt of the administrative request message (602/603). It is not a retrieval fulfilment.

c) An administrative instruction acknowledgement message (672) shall be sent in response to an administrative instruction message (662) only if the administrative instruction message (662) indicated in *Batch/file transfer message control* that acknowledgement was required. The administrative instruction acknowledgement message (672) indicates that a certain number of preceding instruction messages were received. It is not a retrieval fulfilment.

The following applies to administrative messages when used for retrieval fulfilment.

a) An administrative notification message (640) shall be sent by the acquirer to indicate the results of the retrieval fulfilment.

b) An administrative notification acknowledgement message (650) shall be sent by the card issuer in response to a administrative notification message (640) only if the administrative notification message (640) indicated in *Batch/file transfer message control* that acknowledgement was required. The administrative notification acknowledgement message (650) indicates that a certain number of preceding notification messages were received.

8.11.3 Retrieval and retrieval fulfilment message type identifiers

Table 51 defines the administrative message type identifiers that may be used in support of a retrieval.

Table 51 — Retrieval message type identifiers

MTI	Message	Purpose	From	To	Usage
602	Administrative request	Request for transaction information	Card issuer	Acquirer	
603	Administrative request repeat				
612	Administrative request response	Indicates receipt of previous administrative request message	Acquirer	Card issuer	Shall be sent in response to a 602 or a 603
662	Administrative instruction	Request for transaction information	Card issuer	Acquirer	
672	Administrative instruction acknowledgement	Acknowledges receipt of one or more administrative instruction messages	Acquirer	Card issuer	Shall be sent in response to a 662 if *Batch/file transfer message control* requested acknowledgement

Table 52 defines the administrative message type identifiers that may be used in support of a retrieval fulfilment.

Table 52 — Retrieval fulfilment message type identifiers

MTI	Message	Purpose	From	To	Usage
640	Administrative notification	Indicates whether previous retrieval could be fulfilled and method of delivery	Acquirer	Card issuer	
650	Administrative notification acknowledgement	Acknowledges receipt of one or more administrative notification messages	Card issuer	Acquirer	Shall be sent in response to a 640 if *Batch/file transfer message control* requested acknowledgement

8.11.4 Retrieval and retrieval fulfilment mandatory and conditional data elements

Table 53 lists the mandatory and conditional data elements used in administrative messages when used in support of retrieval and retrieval fulfilment. The condition codes are defined in Table 25.

Table 53 — Retrieval and retrieval fulfilment mandatory and conditional data elements

Administrative messages		Message type identifiers			
Bit	Data element name	602, 603	612	640, 662	650, 672
1	(see 5.3 for usage)				
2	Primary account number	07	16	07	
11	Systems trace audit number	M	ME	M	ME
12	Date and time local transaction	M	ME	M	
18	Message error indicator		36		
21	Transaction life cycle identification data	33	33	33	33
24	Function code	M		M	
25	Message reason code	M		M	
30	Amounts original	08	08	08	
31	Acquirer reference number	40	40	40	
32	Acquiring institution identification code	M	ME	M	
33	Forwarding institution identification code	10	10	10	
37	Retrieval reference number	15		15	
39	Action code		M	M	
68	Batch/file transfer message control			39	39
100	Receiving institution identification code	19	19	19	

8.11.5 Retrieval and retrieval fulfilment message flows

Figure 25 shows the sequence of administrative messages that may flow in support of a retrieval.

Figure 25 — Retrieval message flows

Figure 26 shows the sequence of administrative messages that may flow in support of a retrieval fulfilment.

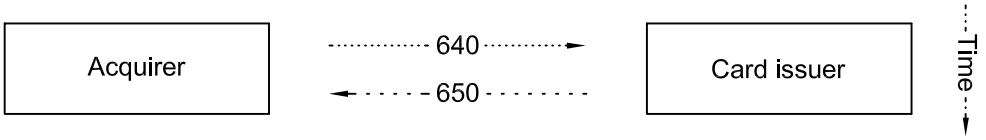


Figure 26 — Retrieval fulfilment message flows

8.12 Error messages

8.12.1 Error messages description

Error messages allow for the details of specific errors to be returned to the message sender (see 7.1.4 and 7.1.5).

8.12.2 Error messages message rules

Error messages use the notification/acknowledgement messages from the administrative message class.

The following applies to all administrative messages when used for error messages.

a) All error messages shall be sent as administrative notification messages.

b) An administrative notification message (644) shall be sent in response to any previously submitted message:

   1) that cannot be parsed by the receiver, in which case the *Function code* shall be “650”;

   2) which contains an MTI that is not recognized by the receiver, in which case the *Function code* shall be “651”;

   3) in response to a previously submitted notification or instruction message if the receiver detects an error condition in the notification or instruction message:

      i) the *Function code* shall be “652” if the error condition results in the rejection of a single message and the *Message error indicator* data elements shall provide a code that explains the error condition;

      ii) the *Function code* shall be “653” if the error condition results in the rejection of an entire batch or file. The *Message error indicator* data element shall provide a code that explains the error

condition. Only one administrative message shall be returned for the entire batch or file, i.e. the receiver shall not return every single message in the batch or file;

iii) if the *Function code* is “650” or “651”, the *Message error indicator* is not required.

c) An administrative notification acknowledgement message (654) shall be generated in response to an administrative notification message (644) only if the administrative notification message (644) indicated (in *Batch/file transfer message control*) that acknowledgement was required. The administrative notification acknowledgement message (654) indicates that a certain number of preceding notification messages were received.

d) Within an administrative notification message, the *Data record* data element shall contain the invalid data and/or any additional information that will assist in correcting the error condition.

8.12.3 Error messages message type identifiers

Table 54 defines the administrative message type identifiers that may be used in error message.

Table 54 — Error messages message type identifiers

MTI	Message	Purpose	From	To	Usage
644	Administrative notification	Notifies of an error condition detected by the receiver in a previously submitted message	Receiver	Sender	Shall be sent by the receiver of a message that cannot be parsed, a message that contains an unrecognized MTI, or a notification or instruction message in which the receiver detected an error condition.
654	Administrative notification acknowledge-ment	Acknowledges receipt of one or more administrative notification messages	Sender	Receiver	Shall be sent in response to a 644 if *Batch/file transfer message control* requested acknowledgement

8.12.4 Error messages mandatory and conditional data elements

Table 55 lists the mandatory and conditional data elements used in administrative messages when used in support of error messages. The condition codes are defined in Table 25.

Table 55 — Error messages mandatory and conditional data elements

Administrative messages		MTI	
Bit	Data element name	644	654
1	(see 5.3 for usage)		
11	Systems trace audit number	M	ME
12	Date and time local transaction	M	M
18	Message error indicator	41	
21	Transaction life cycle identification data	37	16
24	Function code	M	
33	Forwarding institution identification code	10	
68	Batch/file transfer message control	37	
69	Batch/file transfer control data	37	
72	Data record	M	
93	Transaction destination institution identification code	M	
94	Transaction originator institution identification code	M	
100	Receiving institution identification code	19	

8.12.5 Error messages message flows

Figure 27 shows the sequence of administrative messages that may flow in support of an error message where all or part of the MTI is not recognized, or the receiver is unable to parse the message.

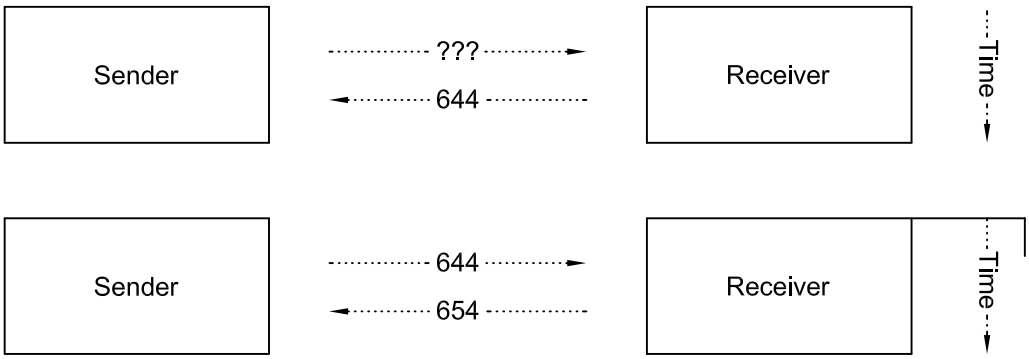


Figure 27 — Error messages flows when message type cannot be recognized

Figure 28 shows the sequence of administrative messages that may flow in support of an error message where the MTI indicates a notification or instruction message and there are errors within the message.

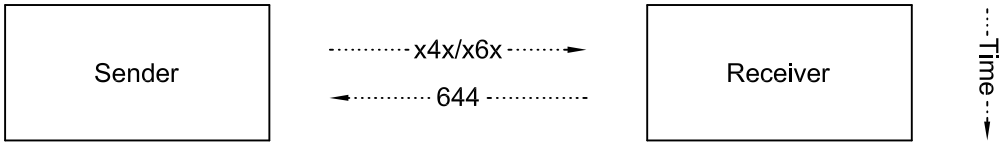


Figure 28 — Error messages flows when notification or instruction message contains errors

8.13 Fee collection message class

8.13.1 Fee collection description

Fee collection is the activity that supports the collection and disbursement of miscellaneous service fees between financial institutions.

Fee collection has financial impact and affect reconciliation totals (see Table 48). Fee collection shall not affect a cardholder account.

To cancel, either partially or completely, a previous fee collection transaction that was submitted in error, a further fee collection transaction shall be sent using *Function code* 701.

8.13.2 Fee collection message rules

The following applies to all fee collection messages.

a) Fee collection messages may be in either direction i.e. acquirer to card issuer or card issuer to acquirer.

b) A fee collection advice message (720/721 or 722/723) or fee collection notification message (740/742) shall be sent when an institution wishes to claim or pay a miscellaneous service fee.

c) A fee collection advice response message (730/732) shall be sent in response to a fee collection advice (720/721 or 722/723) message. A fee collection advice response message (730/732) indicates the receiver's response to the fee collection advice message (720/721 or 722/723). A fee collection advice message (720/721 or 722/723) shall not be declined by the receiver, except for the specific reasons defined in Clause A.1.

d) A fee collection notification acknowledgement message (750/752) shall be sent in response to a fee collection notification message (740/742) only if the fee collection notification message (740/742) indicated (in *Batch/file transfer message control*) that acknowledgement was required. The fee collection notification acknowledgement message (750/752) indicates that a certain number of preceding notification messages were received.

8.13.3 Fee collection message type identifiers

Table 56 defines the message type identifiers that may be used in a fee collection transaction.

Table 56 — Fee collection message type identifiers

MTI	Message	Purpose	From	To	Usage
720	Acquirer fee collection advice	Advises of a service fee due to be collected	Acquirer	Card issuer	
721	Acquirer fee collection advice repeat				
730	Acquirer fee collection advice response	Carries the answer to an acquirer fee collection advice	Card issuer	Acquirer	Shall be sent in response to a 720 or a 721
740	Acquirer fee collection notification	Notifies of a service fee due to be collected	Acquirer	Card issuer	
750	Acquirer fee collection notification acknowledgement	Acknowledges receipt of one or more acquirer fee collection notifications	Card issuer	Acquirer	Shall be sent in response to a 740 if *Batch/file transfer message control* requested acknowledgement
722	Card issuer fee collection advice	Advises of a service fee due to be collected	Card issuer	Acquirer	
723	Card issuer fee collection advice repeat				
732	Card issuer fee collection advice response	Carries the answer to a card issuer fee collection advice	Acquirer	Card issuer	Shall be sent in response to a 722 or a 723
742	Card issuer fee collection notification	Notifies of a service fee due to be collected	Card issuer	Acquirer	
752	Card issuer fee collection notification acknowledgement	Acknowledges receipt of one or more card issuer fee collection notifications	Acquirer	Card issuer	Shall be sent in response to a 742 if *Batch/file transfer message control* requested acknowledgement

8.13.4 Fee collection mandatory and conditional data elements

Table 57 lists the mandatory and conditional data elements used in fee collection messages. The condition codes are defined in Table 25.

In fee collection messages, the *Primary account number (PAN)* may contain the card issuer's institution identification number only (in accordance with ISO 7812-1).

Table 57 — Fee collection mandatory and conditional data elements

Fee collection messages		Message type identifiers					
Bit	**Data element name**	**720 721**	**730**	**740 742**	**722 723**	**732**	**750 752**
1	(see 5.3 for usage)						
2	Primary account number	M	ME	M	M	ME	
7	Date and time transmission	30	30	30	30	30	
11	Systems trace audit number	M	ME	M	M	ME	ME
12	Date and time local transaction	M	ME	M	M	ME	
18	Message error indicator		36			36	
21	Transaction life cycle identification data	34	34	34	34	34	34
24	Function code	M		M	M		
28	Date reconciliation		12	12		12	
29	Reconciliation indicator		14	23		14	
31	Acquirer reference number	40		40	40		
32	Acquiring institution identification code	M	ME	M	M	ME	
33	Forwarding institution identification code	10	10	10	10	10	
39	Action code		M	M		M	
46	Amounts fees	M	ME	M	M	ME	
59	Transport data		16			16	
68	Batch/file transfer message control			39			39
100	Receiving institution identification code	19	19	19	19	19	

8.13.5 Fee collection message flows

8.13.5.1 Acquirer fee collection

Figure 29 shows the sequence of messages that may flow in support of an acquirer fee collection transaction.

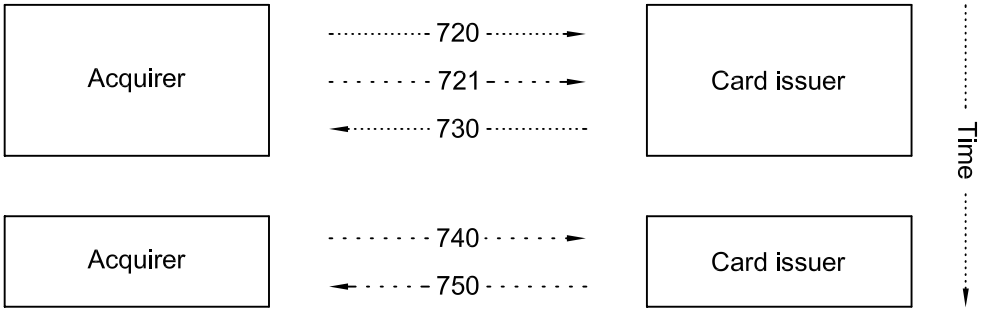


Figure 29 — Acquirer fee collection message flows

8.13.5.2 Card issuer fee collection

Figure 30 shows the sequence of messages that may flow in support of a card issuer fee collection transaction.

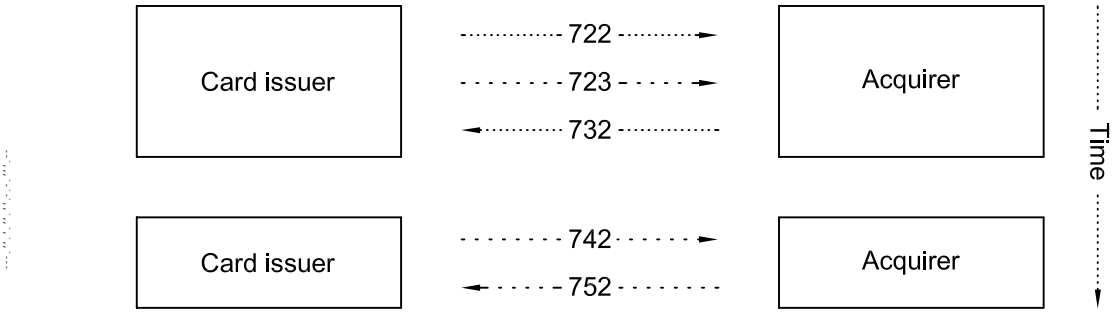


Figure 30 — Card issuer fee collection message flows

8.14 Network management message class

8.14.1 Network management description

Network management is the range of activities carried out to control the system security and operating condition of the interchange network and may be initiated by any interchanging party.

The following types of network management activity are defined.

a) System condition management, which is used to establish and report system availability and to give instructions pertaining to message handling during periods of system unavailability. These messages may be used as part of normal system initialization or shutdown or as part of a failure recovery scheme.

b) System security management, which is used to control security aspects of the interchange system such as key and password management and security alerts. These messages may be used as part of a security procedure, e.g. automatic periodic key changes (see 8.15).

c) System accounting management, which is used to identify the end of a reconciliation period. These messages may be used as part of a reconciliation process (see 8.9.). The receiver shall not decline system accounting messages unless for specific reasons as defined in Clause A.1.

d) System audit controls management, which is used to test integrity of interchange links and/or used as part of an integrity check or failure recovery scheme.

e) Batch and file transfer header and trailer control management, which is used to denote the start and/or end of batch or file transfer.

8.14.2 Network management message rules

The following applies to all network management messages.

a) A network management request message (804/805) shall be sent to request a network management activity.

b) A network management response message (814) shall be sent in response to a network management request message (804/805).

c) A network management advice message (824/825) shall be sent to advise of a network management activity.

d) A network management advice response message (834) shall be sent in response to a network management advice message (824/825) to indicate receipt of the network management message (824/825).

e) A network management notification message (844) shall be sent to advise of a network management activity.

f) A network management notification acknowledgement message (854) shall only be sent in response to a network management notification message (844), if the network management notification message indicated (in *Batch/file transfer message control*) that an acknowledgement was required (e.g. to confirm that a complete batch or file has been received).

8.14.3 Network management message type identifiers

Table 58 defines the message type identifiers that may be used in a network management transaction.

Table 58 — Network management message type identifiers

MTI	Message	Purpose	From	To	Usage
804	Network management request	Requests a network management, batch transfer or file transfer activity	Sender	Receiver	
805	Network management request repeat				
814	Network management request response	Carries the answer to a network management or batch/file transfer request message	Receiver	Sender	Shall be sent in response to a 804 or a 805
824	Network management advice	Advises of a network management activity	Sender	Receiver	
825	Network management advice repeat				
834	Network management advice response	Carries the answer to a network management advice	Receiver	Sender	Shall be sent in response to a 824 or a 825
844	Network management notification	Notifies of a network management or batch/file transfer action	Sender	Receiver	
854	Network management notification acknowledgement	Acknowledges completion of one or more network activities	Receiver	Sender	Shall be sent in response to a 844 if *Batch/file transfer message control* requested acknowledgement.

8.14.4 Network management mandatory and conditional data elements

Table 59 lists the mandatory and conditional data elements used in network management messages. The condition codes are defined in Table 25.

Table 59 — Network management mandatory and conditional data elements

Network management messages		Message type identifiers					
Bit	**Data element name**	**804 805**	**814**	**824 825**	**834**	**844**	**854**
1	(see 5.2 for usage)						
7	Date and time transmission	30	30	30	30	30	30
11	Systems trace audit number	M	ME	M	ME	M	M
12	Date and time local transaction	M	ME	M	ME	M	ME
18	Message error indicator		36		36		
24	Function code	M		M		M	
25	Message reason code	39				39	
28	Date reconciliation	24	16	24	16	24	
29	Reconciliation indicator	25	16	25	16	25	
33	Forwarding institution identification code	10	10	10	10	10	
39	Action code		M	M	M	M	
59	Transport data		16		16		
68	Batch/file transfer message control					39	39
69	Batch/file transfer control data	39	ME			39	ME
70	File transfer description data	38	ME			38	ME
93	Transaction destination institution identification code	M	ME	M	ME	M	ME
94	Transaction originator institution identification code	M	ME	M	ME	M	ME
100	Receiving institution identification code	19	19	19	19	19	19

8.14.5 Network management message flows

Figure 31 shows the sequence of messages that may flow in support of a network management transaction.

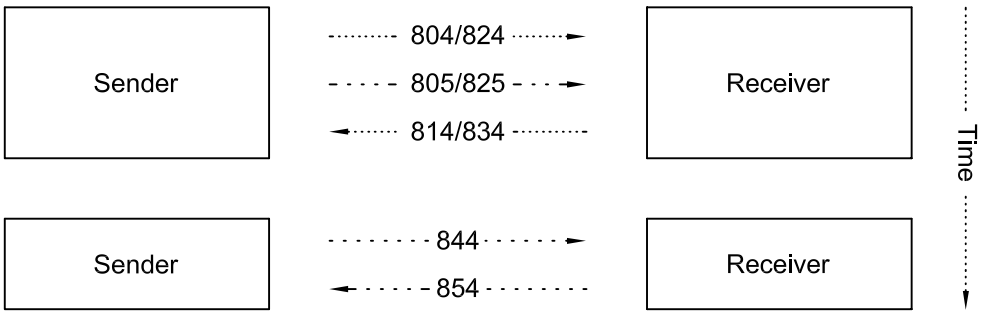


Figure 31 — Network management message flows

8.15 Key management

8.15.1 Key management description

Key management is the activity of requesting or exchanging information regarding cryptographic keys, such as request key change or request verification of key.

8.15.2 Key management message rules

Key management uses the request/response and advice/response messages from the network management message class.

The following applies to all network management messages when used for key management.

a) A network management request message (804/805) shall be sent to request a key management activity:

   1) *Security related control information* data element contains information on the associated transaction key. The sender and the receiver agree the format in accordance with ISO 13492;

   2) *Key management data* data element contains a key in cryptographic format and may contain associated key check digits.

b) A network management response message (814) shall be sent in response to a network management request (804/805).

c) A network management advice message (824/825) shall be to convey information about a cryptographic key, e.g. deliver a key. The *Function code* data element shall be used to indicate the type of key management activity required:

   1) *Security related control information* data element contains information on the associated transaction key. The sender and the receiver agree the format in accordance with ISO 13492;

   2) *Key management data* data element contains key in cryptographic format and may contain associated key check digits.

d) A network management advice response message (834) shall be sent in response to a network management advice message (824/825) to indicate receipt of the network management advice message (824/825).

8.15.3 Key management message type identifiers

Table 60 defines the network management message type identifiers that may be used in key management.

Table 60 — Key management message type identifier

MTI	Message	Purpose	From	To	Usage
804	Network management request	Request a key management activity	Sender	Receiver	
805	Network management request repeat				
814	Network management request response	Carries the answer to a network management request message	Receiver	Sender	Shall be sent in response to a 804 or 805
824	Network management advice	Advises of a key management activity	Sender	Receiver	
825	Network management advice repeat				
834	Network management advice response	Carries the answer to a network management advice message	Receiver	Sender	Shall be sent in response to a 824 or 825

8.15.4 Key management mandatory and conditional data elements

Table 61 lists the mandatory and conditional data elements used in network management messages when used in support of key management. The condition codes are defined in Table 25.

Table 61 — Key management mandatory and conditional data elements

Network management messages		Message type identifiers			
Bit	**Data element name**	**804 805**	**814**	**824 825**	**834**
1	(see 5.3 for usage)				
7	Date and time transmission	30	30	30	30
11	Systems trace audit number	M	ME	M	ME
12	Date and time local transaction	M	ME	M	ME
18	Message error indicator		36		36
24	Function code	M		M	
25	Message reason code	M		M	
33	Forwarding institution identification code	10	10	10	10
39	Action code		M		M
53	Security related information	M		M	
59	Transport data		16		16
93	Transaction destination institution identification code	M	ME	M	ME
94	Transaction originator institution identification code	M	ME	M	ME
96	Key management data		35	M	
100	Receiving institution identification code	19	19	19	19

8.15.5 Key management message flows

Figure 32 shows the sequence of network management messages that may flow in support of key management.

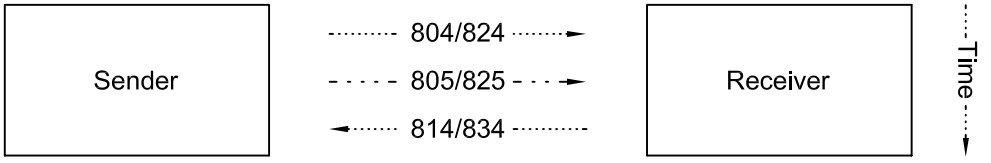


Figure 32 — Key management message flows

8.16 Batch transfer

8.16.1 Batch transfer description

The definitions of request and advice messages in this part of ISO 8583 require a specific response to each request or advice sent. This is inefficient where the acquirer, without recourse to the card issuer, has completed transactions and now wishes to inform the card issuer of the results.

Batch transfer allows transaction details to be sent as a series of notification or instruction messages without requiring a response message for every message sent. Control is maintained by the use of notification or instruction acknowledgement messages, which may be sent periodically, within the transmission of a batch.

The same technique can be employed between the card issuer and acquirer where the card issuer is required to send individual messages, such as chargeback messages, without the need for an individual response to each one.

8.16.2 Batch transfer message rules

The following applies to batch transfer messages.

a) Each batch in a batch transfer shall begin and end with a network management message containing the appropriate *Function code* and *Batch/file transfer control data* data element:

   1) the *Function code* within the network management message indicates the start and end of a batch;

   2) the *Batch/file transfer file identification* sub-element of *Batch/file transfer control data* within the network management message (804/805 or 844) provides a unique identifier for the batch;

   3) the network management message that begins the batch shall be a request/response (804/814) if one or more messages within a batch request an acknowledgement from the receiver;

   4) the network management message that begins the batch may be either a notification (844) or a request/response (804/814) if no acknowledgements are requested within the batch.

b) A batch shall consist of notification or instruction messages with an optional reconciliation transaction.

c) The *Batch/file transfer message number* sub-element of *Batch/file transfer message control* within each message in a batch provides a unique message sequence number within the batch.

d) Additional requirements for the sequencing of messages within a batch are left to bilateral agreement.

8.16.3 Batch transfer message type identifiers

There are no specific message types needed to support batch transfer. Batch transfer is achieved by the use of existing message types and a number of specific data elements defined to support this activity. Details of these specific data elements and the rules for their usage are given in 8.16.4.

8.16.4 Batch transfer mandatory and conditional data elements

8.16.4.1 General

The relevant mandatory and conditional data elements of any message type which is used in batch transfer applies.

Because in batch transfer there is not a mandatory requirement for a response to each message sent, there needs to be a method of control so that messages are not lost and transmission problems do not result in the need to resend messages that have been successfully sent. The data elements listed below are used to provide these controls.

8.16.4.2 Batch/file transfer message control

The *Batch/file transfer message control* data element shall be present in all notification, notification acknowledgement, instruction and instruction acknowledgement messages submitted as part of a batch transfer. It provides the unique message number and acknowledgement control for the message. This data element consists of two sub-elements.

In notification or instruction messages:

a) Sub-element 1 (*Batch/file transfer acknowledgement code*) indicates whether the sender requires an acknowledgement from the receiver. When this sub-element indicates “acknowledgement required,” the sender shall not transmit any other notification or instruction message before receiving a notification acknowledgement or instruction acknowledgement message.

b) Sub-element 2 (*Batch/file transfer message sequence number*) provides the unique sequence number assigned to the message within the batch.

In notification acknowledgement or instruction acknowledgement messages:

a) Sub-element 1 (*Batch/file transfer acknowledgement code*) indicates whether acknowledgement from the receiver is positive or negative.

b) Sub-element 2 (*Batch/file transfer message sequence number*) indicates to the sender the last message number correctly received by the receiver:

   1) if sub-element 1 is set to 3 (e.g. positive acknowledgement), the receiver shall set sub-element 2 to indicate the last message number correctly received;

   2) if sub-element 1 is set to 7 (negative acknowledgement, repeat requested), the receiver shall set sub-element 2 to indicate the last message number correctly received before an error was detected;

   3) if sub-element 1 is set to 8 (negative acknowledgement, no repeat), the receiver shall set sub-element 2 to indicate the last message number correctly received before an error was detected.

c) If an expected acknowledgement message is not received, the sender shall resend the instruction or notification message without change.

A list of values and definitions for sub-element 1 can be found in Clause A.6.

8.16.4.3 Batch/file transfer control data

The *Batch/file transfer control data* data element shall be present in network management request, request response, notification messages and notification acknowledgement messages that denote the start and end of a batch. It provides the batch identification and number of messages in the batch. This data element consists of two sub-elements.

a) Sub-element 1 (*Batch/file transfer message count*) indicates the total number of notification or instruction messages to be transmitted for this batch. This count does not include network management messages or reconciliation messages. A value of all nines in this sub-element when used in the network management message that starts the batch indicates that the sender will provide the actual count in this sub-element within *Batch/file transfer control data* in the network management message that ends the batch.

b) Sub-element 2 (*Batch/file transfer file identification*) provides the unique identifier assigned to the batch being sent.

8.16.5 Batch transfer message flows

Figure 33 shows the sequence of messages that may flow in support of an acquirer initiated batch transfer and Figure 34 shows the sequence of messages that may flow in support of a card issuer initiated batch transfer. To avoid overcomplicating the figures, only a limited number of message types are shown. In practice, any defined notification message type may be included in a batch transfer.

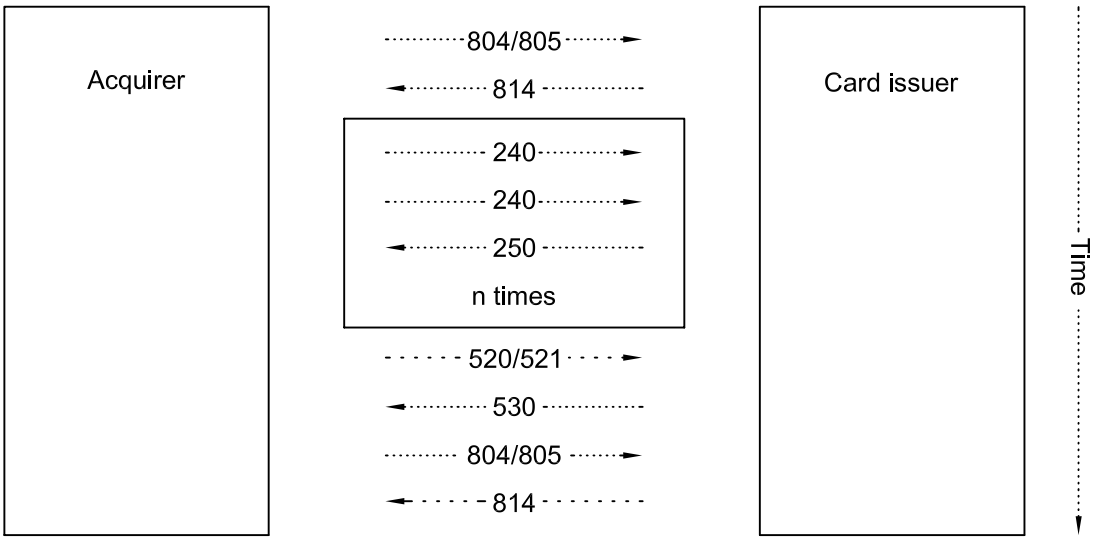


Figure 33 — Acquirer initiated batch transfer message flows

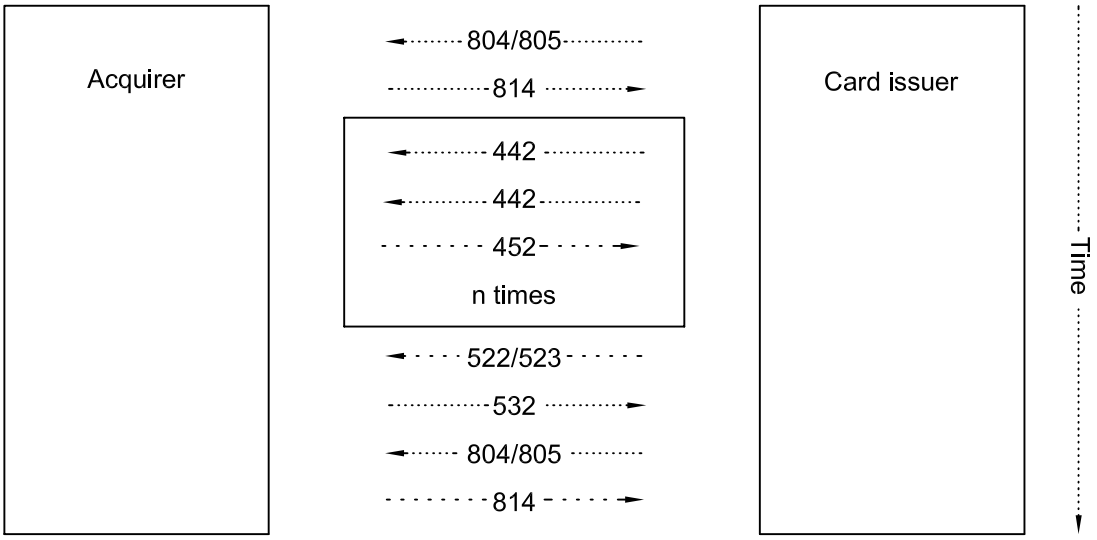


Figure 34 — Card issuer initiated batch transfer message flows

See Annex D for additional examples

8.17 File transfer

8.17.1 File transfer description

Although batch transfer (see 8.16) improves the efficiency of exchanging data, there are situations where institutions may wish to transfer larger volumes of data in the minimum number of messages.

File transfer consists of the submission of a group of file action messages (3xx) in which the *Data record* data element contains data from a number of business transactions. The data contained in the *Data record* data element may or may not be based on message types identified in this part of ISO 8583. The structure of the *Data record* data element is subject to bilateral agreement.

This part of ISO 8583 defines a file as “a collection of *Data record* data elements” and a *Data record* data element as “other data required to be passed in order to support an administrative activity or file action”. Therefore, a file transfer is a series of 3xx messages where the total number of such messages constitutes a file.

These definitions do not however adequately define what is contained within an individual *Data record* data element. The *Data record* data element is a variable length data element of considerable length where details of several business transactions can be carried.

To facilitate interchange, the details of a single business transaction are defined as being contained in a single elementary data record. The structure of an elementary data record is subject to bilateral agreement. Thus, a file of business transactions is split up and sent as a number of elementary data records contained in the *Data record* data element in the minimum number of 3xx messages needed.

In order that the recipient of such a file of 3xx messages can extract the individual elementary data records from each 3xx message, the *File transfer description data* data element is used to advise the recipient of the file size and number of elementary data records being sent. The length of each elementary data record may vary and may be defined as part of the structure of the elementary data record, which is subject to bilateral agreement.

8.17.2 File transfer message rules

The following applies to file transfer messages.

a) Each file in a file transfer shall begin and end with a network management transaction (804/805 or 844) containing the appropriate *Function code* and *Batch/file transfer control data* and *File transfer description data* data elements:

   1) the *Function code* within the network management message (804/805 or 844) indicates the start or end of the file;

   2) the *Batch/file transfer file identification* sub-element of *Batch/file transfer control data* within the network management message (804/805 or 844) provides a unique identifier for the file;

   3) the network management transaction that begins the file shall be a request/response (804/814) if one or more messages within the file request acknowledgement from the receiver;

   4) the network management transaction that begins the file may be either a notification (844) or a request/response (804/814) if no acknowledgements are requested within the file.

b) A file shall consist of 3xx file action notification or instruction messages:

   1) *File name* within the file action notification or instruction message indicates the name of the file to be updated at the receiver's location, e.g. warning bulletin file.

c) File action messages sent by the acquirer to the card issuer shall be notification messages.

d) File action messages sent by the card issuer to acquirer shall be instruction messages.

e) File action messages sent from sender to receiver (parties other than the card issuer or acquirer) may be either notification or instruction messages.

f) The *Batch/file transfer message number* sub-element of *Batch/file transfer message control* within each message in a file provides a unique message sequence number within the file.

8.17.3 File transfer message type identifiers

File transfer uses the file action message types to send files. The specific requirements are defined in 8.6. File transfer uses a number of specific data elements to support this activity. Details of these specific data elements and the rules of their usage are given in 8.17.4.

8.17.4 File transfer mandatory and conditional data elements

8.17.4.1 General

The relevant mandatory and conditional data elements of any message type which is used in batch transfer applies, as do the conditions defined in 8.6.

Because in file transfer there is not a mandatory requirement for a response to each message sent, there needs to be a method of control so that messages are not lost and transmission problems do not result in the need to resend messages that have been successfully sent. The data elements listed below are used to provide these controls.

8.17.4.2 Batch/file transfer message control

The *Batch/file transfer message control* data element provides the unique message number and acknowledgement control for the message. Its use in file transfer is identical to its use in batch transfer (see 8.16.4.2 for more information).

8.17.4.3 Batch/file transfer control data

The *Batch/file transfer control data* data element shall be present in network management messages that denote the start and end of the file. It shall also be present in each 3xx file action message within a file. This data element consists of two sub-elements.

a) Sub-element 1 (*Batch/file transfer message count*) indicates the number of 3xx file action messages to be transmitted in this file. A value of all nines in this sub-element when used in a network management message that starts the file indicates that the sender will provide the actual count in this sub-element in the network management message that ends the file.

b) Sub-element 2 (*Batch/file transfer file identification*) provides the unique identifier assigned to the file being sent.

8.17.4.4 File transfer description data

The *File transfer description data* data element is used only in file transfer messages. It shall be present in 8xx network management and 3xx file action messages that are submitted as part of a file transfer. It provides the size of the file to be sent, the total number of elementary data records in the file and the number of elementary data records that remain to be transferred.

This data element consists of three sub-elements.

a) Sub-element 1 (*File transfer file size*) provides the total length in bytes of the elementary data records in the file to be sent. A value of zero (0) in this sub-element indicates that the length of the file is irrelevant.

b) Sub-element 2 (*File transfer elementary data record count*) indicates the total number of elementary data records in the file to be sent.

c) Sub-element 3 (*File transfer remaining data record count*) indicates the remaining number of elementary data records in the file to be sent.

8.17.5 File transfer message flows

Figure 35 shows the sequence of messages that may flow in support of an acquirer initiated file transfer and Figure 36 shows the sequence of messages that may flow in support of a card issuer initiated file transfer.

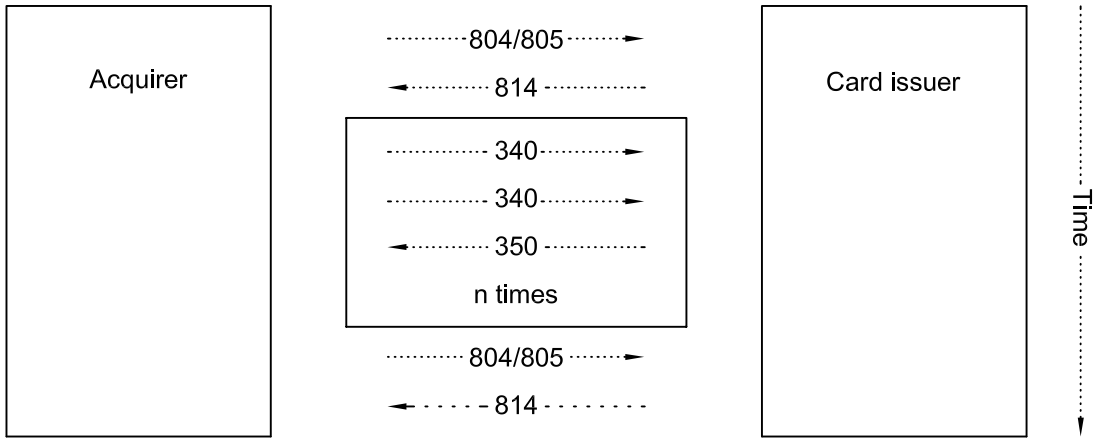


Figure 35 — Acquirer initiated file transfer message flows

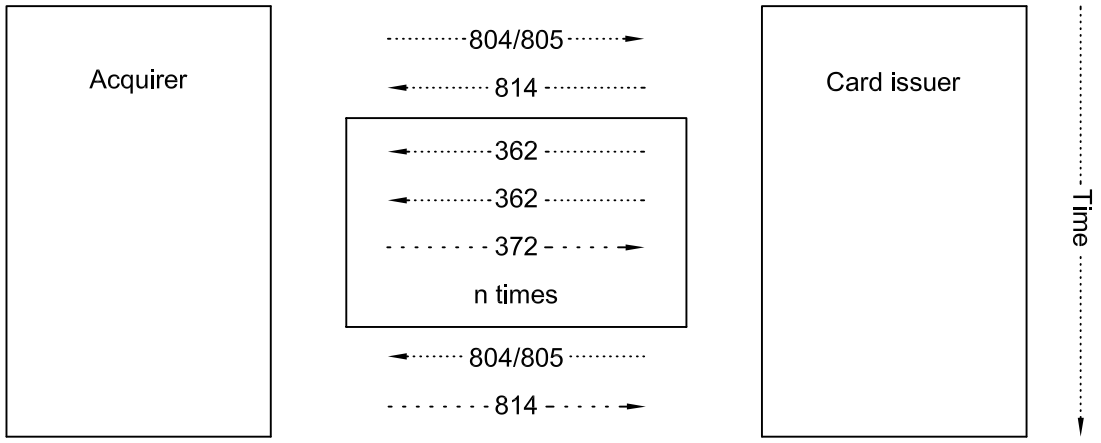


Figure 36 — Card issuer initiated file transfer message flows

See Annex E for additional examples.

9 Message and transaction matching

9.1 General

Where matching is required, it is achieved by reference to a set of fixed unchanged data elements. Two types of matching are defined.

a) Message matching, i.e. a two message exchange, such as request, request repeat and response.

b) Transaction matching, i.e. matching subsequent life cycle transactions, such as a financial presentment and a chargeback.

9.2 Message matching

The *System trace audit number* data element shall be used to match messages within a two message exchange, such as:

a) request, request repeat and request response;

b) advice, advice repeat and advice response;

c) notification and notification acknowledgement;

d) instruction and instruction acknowledgement.

9.3 Transaction matching

The *Transaction life cycle identification data* data element shall be used to match subsequent life cycle transactions, e.g. a financial presentment to an earlier authorization or a chargeback to an earlier financial presentment. Once assigned, the *Transaction life cycle identification data* data element shall remain the same for all subsequent messages in the transactions life cycle (i.e. reversal, retrieval, chargeback etc.). See Table 62 for an example of how to complete the indicated data elements. In this example, it is assumed that the card issuer charges back the financial presentment message.

Table 62 — Matching using the same values in the *Life cycle transaction sequence number*

Transaction sequence	MTI	Message matching	Transaction matching
		Systems trace audit number	Transaction life cycle identification data
Authorization	100	000000000001	120000623000000100
Authorization repeat	101	000000000001	120000623000000100
Authorization response	110	000000000001	120000623000000100
Financial presentment	240	000000000002	120000623000000100
Partial reversal	440	000000000003	120000623000000100
Chargeback	442	000000000004	120000623000000100
Chargeback acknowledgement	452	000000000004	120000623000000100

Where the acquirer has obtained one authorization and then submits more than one financial presentment (e.g. one authorization for two airline tickets followed by two financial presentments, one for each ticket), Table 63 gives an example of the usage of *Systems trace audit number* and *Transaction life cycle identification data*. In this example, it is assumed that the card issuer charges back the second financial presentment message. When this occurs:

a) transaction matching between the authorization and the financial presentment messages would then occur based on only the first two parts of *Transaction life cycle identification data*, i.e. matching would exclude *Life cycle transaction sequence number*;

b) all subsequent transaction matching (retrieval to financial presentment, chargeback to financial presentment, etc.) would occur based on all parts of *Transaction life cycle identification data*, including the *Life cycle transaction sequence number*.

Table 63 — Matching using different values in the *Life cycle transaction sequence number*

Transaction sequence	MTI	Message matching	Transaction matching
		Systems trace audit number	Transaction life cycle identification data
Authorization	100	000000000001	120000623000000100
Authorization repeat	101	000000000001	120000623000000100
Authorization response	110	000000000001	120000623000000100
Financial presentment No. 1	240	000000000002	120000623000000101
Financial presentment No. 2	240	000000000003	120000623000000102
Chargeback of financial presentment No. 2	442	000000000004	120000623000000102
Chargeback acknowledgement for financial presentment No. 2	452	000000000004	120000623000000102

Where multiple authorizations were obtained covering a single financial presentment (e.g. in the hotel industry where an acquirer obtains several authorizations when a cardholder chooses to extend his stay), the acquirer may

— assign the same non-zero value to *Transaction life cycle identification data* for each authorization and submit the same value in the financial presentment, in which case it will be up to bilateral agreement to determine how the authorizations and financial presentment will be specifically matched, or alternatively

— assign different values to the *Transaction life cycle identification data* for each authorization and then submit a single financial presentment where the *Transaction life cycle identification data* of the final authorization obtained shall be used. Matching between the final authorization and any subsequent transaction will use all parts of the *Transaction life cycle identification data*, in which case it will be up to bilateral agreement to determine how the authorizations and financial presentment will be specifically matched.

10 Registration and maintenance management group (RMMG)

10.1 General

The RMMG is the body established by TC 68/SC 6 and empowered to act on its behalf in the issuing of institution identification codes, the maintenance of codes and other changes to this part of ISO 8583.

The scope and specific responsibilities of the RMMG, along with the associated registration authority for the allocation of institution identification codes (IIC's), are specified in ISO 8583-2.

The scope and specific responsibilities of the RMMG, along with the associated maintenance agency for the maintenance of this part of ISO 8583, are specified in ISO 8583-3.

Figure 37 shows the relationships between these bodies.

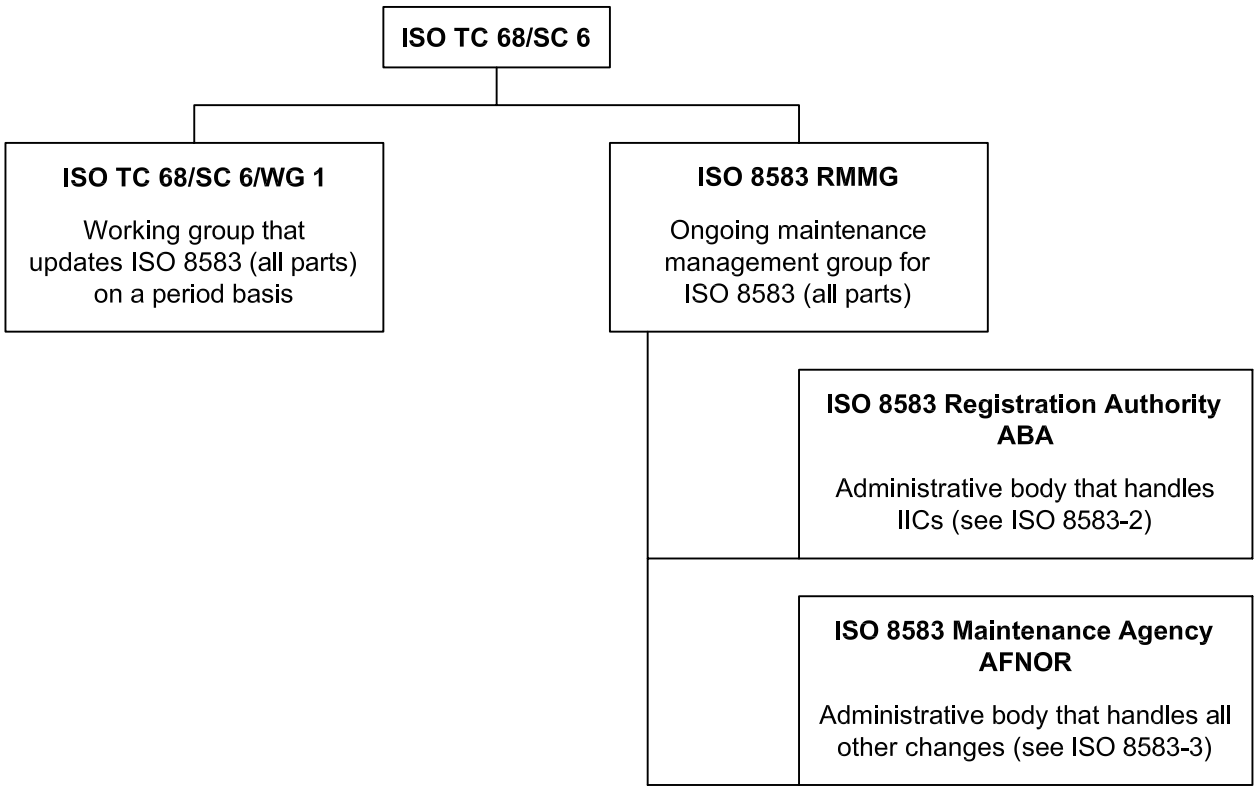


Figure 37 — Relationship of maintenance bodies

10.2 Allocation of institution identification codes

Any institution already holding an identification number assigned through ISO 7812 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 7812, application for an institution identification code (IIC) shall be via the processes specified in ISO 8583-2.

10.3 Development of this part of ISO 8583

Any institution or organization using this part of ISO 8583 may submit an application to the RMMG for a change to any or all of the following items and the associated rules and condition codes that may be applicable:

a) additional codes to those defined in Annex A;

b) new message type identifier or message class values;

c) new primitive data elements;

d) new constructed data elements;

e) new composite data elements;

f) new dataset identifiers values and/or sub-elements related to an existing composite data element;

g) new sub-elements in an existing composite data element dataset.

The procedures for requesting and approving changes shall be in accordance with ISO 8583-3.

It is the responsibility of the RMMG to ensure that only changes that do not require a new version number are approved between major revisions of this part of ISO 8583 (see 5.1.2.2).

11 Guidance on the use of this part of ISO 8583

11.1 Additional message types

This part of ISO 8583 is so constructed that new message type identifiers may be added by either amendment to this part of ISO 8583, or by use of the national or private series of message type identifiers within the terms of this part of ISO 8583.

11.2 Additional data elements

This part of ISO 8583 is constructed so that new data element(s) may be added. An unassigned bit shall be required. Such assignment shall be made either by amendment to this part of ISO 8583 or by national or private agreement within the terms of this part of ISO 8583.

The addition of a new data element is facilitated by the assignment of that data element to a position in the message bit map. In conjunction with the bit map technique, each data element is either fixed in length or preceded by a fixed length attribute “LL”, “LLL” or “LLLL” indicating the length of the variable data to follow.

11.3 Mandatory and conditional data elements

The designation of a data element within a message as mandatory (M) is based upon one criterion. The data element so designated is one that shall be present to support the purpose of the message. This designation may, in some cases, conflict with existing system capability or the needs of potential users of this part of ISO 8583. To avoid unnecessary controversy over these designations, it shall be understood that the designations apply to interchange messages between two or more systems or networks. If a self-contained network chooses to modify these designations for intrasystem use, this would not constitute a violation of this part of ISO 8583. If, however, a message is sent from one system to another, all parties in the system shall be prepared to meet the mandatory requirements unless these designations are bilaterally modified during the course of normal business negotiations by the systems involved.

The designation of a data element within a message as conditional (nn) is based upon one criterion. The data element so designated is one that shall be present if the condition specified in Table 25 is satisfied.

11.4 Unintentional introduction of control characters

Bit streams, such as a bit map, PIN or password data elements may unintentionally introduce control characters into the transmission stream under certain communications protocols. Users of such protocols should take steps to avoid this occurrence. Annex B gives guidance on transmitting messages over networks.

Annex A
(normative)

Code listings

A.1 Action codes (bit 39)

Table A.1 lists the action codes.

Table A.1 — Action codes

Range	Codes	Description
0000-0999 Used in 110, 120, 121, 140 210, 220, 221 and 240 messages to indicate that the transaction has been approved	0000	Approved
	0001	Honour with identification
	0002	Approved for partial amount
	0003	Approved (VIP)
	0004	Approved, update track 3
	0005	Approved, account type specified by card issuer
	0006	Approved for partial amount, account type specified by card issuer
	0007	Reserved for ISO use
	0008	Approved but fees disputed
	0009	Approved with overdraft
	0010	Approved, customer reactivated
	0011	Approved, terminal unable to process online
	0012	Approved, transaction processed offline by terminal
	0013	Approved, transaction processed offline after referral
	0014-0599	Reserved for ISO use
	0600-0799	Reserved for national use
	0800-0999	Reserved for private use
1000-1999 Used in 110, 114, 120, 121, 124, 140 144, 154 and 210, 220, 221 and 240 messages to indicate that the transaction has been processed for authorization or verification by or on behalf of the card issuer and has been denied (not requiring a card pick-up.)	1000	Do not honour
	1001	Expired card
	1002	Suspected fraud
	1003	Card acceptor contact acquirer
	1004	Restricted card
	1005	Card acceptor call acquirer's security department
	1006	Allowable PIN tries exceeded
	1007	Refer to card issuer
	1008	Refer to card issuer's special conditions
	1009	Invalid card acceptor
	1010	Invalid amount
	1011	Invalid card number
	1012	PIN data required
	1013	Unacceptable fee
	1014	No account of type requested
	1015	Requested function not supported

Table A.1 (*continued*)

Range	Codes	Description
	1016	Not sufficient funds
	1017	Incorrect PIN
	1018	No card record
	1019	Transaction not permitted to cardholder
	1020	Transaction not permitted to terminal
	1021	Exceeds withdrawal amount limit
	1022	Security violation
	1023	Exceeds withdrawal frequency limit
	1024	Violation of law
	1025	Card not effective
	1026	Invalid PIN block
	1027	PIN length error
	1028	PIN key sync error
	1029	Suspected counterfeit card
	1030	Currency unacceptable to card issuer
	1031	Not authorised and fees disputed
	1032	Lost/stolen card
	1033	Authorization lifecycle unacceptable
	1034	Authorization lifecycle has expired
	1035	Closed account
	1036	Closed savings account, or restricted for closing
	1037	Closed credit account or restricted for closing
	1038	Closed credit facility cheque account or restricted for closing
	1039	Closed cheque account or restricted for closing
	1040	Bad debt
	1041	From account bad status
	1042	To account bad status
	1043	Cheque already posted
	1044	Information not on file
	1045	Card verification data failed
	1046	Amount not found
	1047	PIN change required
	1048	New PIN invalid
	1049	Bank not found
	1050	Bank not effective
	1051	Customer vendor not found
	1052	Customer vendor not effective
	1053	Customer vendor account invalid
	1054	Vendor not found
	1055	Vendor not effective
	1056	Vendor data invalid
	1057	Payment date invalid
	1058	Personal identification not found

Table A.1 (*continued*)

Range	Codes	Description
	1059	Scheduled transactions exist
	1060	Transaction did not complete normally at terminal
	1061	Transaction not supported by the card issuer
	1062	Cashback not allowed
	1063	Cashback amount exceeded
	1064	Declined, transaction processed offline by terminal
	1065	Declined, terminal unable to process offline
	1066	Declined, transaction processed offline after referral
	1067	Reserved for ISO use
	1068	Identification number invalid
	1069	Driver number invalid
	1070	Vehicle number invalid
	1071	Digital certificate expired
	1072-1599	Reserved for ISO use
	1600-1799	Reserved for national use
	1800-1999	Reserved for private use
2000-2999 Used in 110, 114, 120, 121, 124, 140 144, 154 and 210, 220, 221 and 240 messages to indicate that the transaction has been processed for authorization or verification by or on behalf of the card issuer and has been denied requiring the card to be picked up	2000	Do not honour
	2001	Expired card
	2002	Suspected fraud
	2003	Card acceptor contact acquirer
	2004	Restricted card
	2005	Card acceptor call acquirer's security department
	2006	Allowable PIN tries exceeded
	2007	Special conditions
	2008	Lost card
	2009	Stolen card
	2010	Suspected counterfeit card
	2011	Daily withdrawal uses exceeded
	2012	Daily withdrawal amount exceeded
	2013-2599	Reserved for ISO use
	2600-2799	Reserved for national use
	2800-2999	Reserved for private use
3000-3999 Used in 314, 324, 325 and 344 messages to indicate the result of the file action	3000	Successful
	3001	Not supported by receiver
	3002	Unable to locate record on file
	3003	Duplicate record, old record replaced
	3004	Field edit error
	3005	File locked out
	3006	Not successful
	3007	Format error
	3008	Duplicate, new record rejected
	3009	Unknown file
	3010	Invalid card/cardholder number
	3011-3599	Reserved for ISO use
	3600-3799	Reserved for national use
	3800-3999	Reserved for private use

Table A.1 (*continued*)

Range	Codes	Description
4000-4999 Used in 430, 432, 440 and 442 messages to indicate the result of the reversal or chargeback	4000	Accepted
	4001-4599	Reserved for ISO use
	4600-4799	Reserved for national use
	4800-4999	Reserved for private use
5000-5999 Used in 510, 512, 530 and 532 messages to indicate the result of a reconciliation	5000	Reconciled, in balance
	5001	Reconciled, out of balance
	5002	Amount not reconciled, totals provided
	5003	Totals not available
	5004	Not reconciled, totals provided
	5005-5599	Reserved for ISO use
	5600-5799	Reserved for national use
	5800-5999	Reserved for private use
6000-6999 Used in 6xx messages to indicate the result of an administrative activity	6000	Accepted
	6001-6599	Reserved for ISO use
	6600-6799	Reserved for national use
	6800-6999	Reserved for private use
7000-7999 Used in 720, 721, 740, 722, 723 and 742 messages to indicate the result of a fee collection	7000	Accepted
	7001-7599	Reserved for ISO use
	7600-7799	Reserved for national use
	7800-7999	Reserved for private use
8000-8999 Used in 8xx network management messages to indicate the result of a network management activity	8000	Accepted
	8001	Rejected, unable to perform request at current time, try later
	8002	Rejected, key verification failed. Key sync error or key check value does not match
	8003-8599	Reserved for ISO use
	8600-8799	Reserved for national use
	8800-8999	Reserved for private use
9000-9001 Used in all message types to indicate error or response actions	9000	Advice acknowledged, no financial liability accepted
	9001	Advice acknowledged, financial liability accepted
9002-9099 Used in advice responses to indicate acceptance conditions	9002-9059	Reserved for ISO use
	9060-9079	Reserved for national use
	9080-9099	Reserved for private use
9100-9101 Used in all message types to indicate error or response actions	9100	One or more data element errors (see message error indicator)
	9101	Reserved for ISO use
9102-9299 Used in request response and advice response messages to indicate transaction could not be processed	9102	Invalid transaction
	9103	Re-enter transaction
	9104	Reserved for ISO use
	9105	Acquirer not supported by switch
	9106	Cutover in process
	9107	Card issuer or switch inoperative
	9108	Transaction destination cannot be found for routing
	9109	System malfunction
	9110	Card issuer signed off
	9111	Card issuer timed out

Table A.1 (*continued*)

Range	Codes	Description
	9112	Card issuer unavailable
	9113	Duplicate transmission
	9114	Not able to trace back to original transaction
	9115	Reconciliation cutover or checkpoint error
	9116	MAC incorrect
	9117	MAC key sync error
	9118	No communication keys available for use
	9119	Encryption key sync error
	9120	Security software/hardware error – try again
	9121	Security software/hardware error – no action
	9122	Message number out of sequence
	9123	Request in progress
	9124	Invalid security code
	9125	Database error
	9126	Reserved for ISO use
	9127	Reserved for ISO use
	9128	Customer vendor format error
	9129	Reserved for ISO use
	9130	Reserved for ISO use
	9131	Reserved for ISO use
	9132	Recurring data error
	9133	Update not allowed
	9124-9259	Reserved for ISO use
	9260-9279	Reserved for national use
	9280-9299	Reserved for private use
9300-9399 Used in advice response messages (x3x) to indicate the reason for rejection of the transfer of financial liability	9300-9349	Reserved for ISO use
	9350	Violation of business arrangement
	9351-9359	Reserved for ISO use
	9360-9379	Reserved for national use
	9380-9399	Reserved for private use
9400-9999 Used in all message types to indicate error or response actions	9400-9998	Reserved for ISO use
	9999	Other errors

A.2 Additional identification type codes (bit 49-71)

Table A.2 lists the additional identification type codes.

Table A.2 — Additional identification type codes

Range	Codes	Description
0-9 Indicates the type of additional indication used	0	Drivers license
	1	Passport
	2	National identity card
	3-5	Reserved for ISO use
	6-7	Reserved for national use
	8-9	Reserved for private use

A.3 Auto adjusted amount indicator codes (bit 104-76)

Table A.3 lists the auto adjusted amount indicator codes.

Table A.3 — Auto adjusted amount indicator codes

Range	Codes	Description
A-Z Indicates the type of charges provided in *Auto amount adjusted*	A	Drop-off charges.
	B	Delivery charges
	C	Parking expenses
	D	Extra hours
	E	Violations
	F-S	Reserved for ISO use
	T-W	Reserved for national use
	X	Multiple charges of the above types
	Y-Z	Reserved for private use
	Space	Unknown

A.4 Amount type codes (bit 54)

Table A.4 lists the amount type codes.

Table A.4 — Amount type codes

Range	Codes	Description
00-1Z Account related balances	00	Reserved for ISO use
	01	Account ledger balance
	02	Account available balance
	03	Amount owing
	04	Amount due
	05	Account available credit
	06	Unknown
	07	Account ledger balance account 2
	08	Account available balance account 2
	09	Credit line
	10	Amount on hold
	11-1J	Reserved for ISO use
	1K-1R	Reserved for national use
	1S-1Z	Reserved for private use
20-2Z Card related amounts	20	Amount remaining this cycle
	21-2J	Reserved for ISO use
	2K-2R	Reserved for national use
	2S-2Z	Reserved for private use
30-3Z Account related amounts	30-3J	Reserved for ISO use
	3K-3R	Reserved for national use
	3S-3Z	Reserved for private use

Table A.4 (*continued*)

Range	Codes	Description
40-4Z Transaction related amounts	40	Amount cash
	41	Amount goods and services
	42	Amount, surcharge
	42-4J	Reserved for ISO use
	4K-4R	Reserved for national use
	4S-4Z	Reserved for private use
50-5Z Electronic benefit amounts	50	Beginning balance
	51	Pre authorised amount
	52-5J	Reserved for ISO use
	5K-5R	Reserved for national use
	5S-5Z	Reserved for private use
60-6Z Reserved	60-6J	Reserved for ISO use
	6K-6R	Reserved for national use
	6S-6Z	Reserved for private use
70-7Z Reserved	70-7J	Reserved for ISO use
	7K-7R	Reserved for national use
	7S-7Z	Reserved for private use
80-8Z Reserved	80-8J	Reserved for ISO use
	8K-8R	Reserved for national use
	8S-8Z	Reserved for private use
90-9Z Reserved	90-9J	Reserved for ISO use
	9K-9R	Reserved for national use
	9S-9Z	Reserved for private use
A0-ZZ Reserved	A0-IZ	Reserved for ISO use
	J0-PZ	Reserved for national use
	R0-ZZ	Reserved for private use

A.5 Authorization life cycle codes (bit 57)

Table A.5 lists the authorization life cycle codes.

Table A.5 — Authorization life cycle codes

Range	Codes	Description
Position 1, 0-9 time code	0	Reserved for ISO use
	1	Calendar days
	2	Hours
	3	Minutes
	4-5	Reserved for ISO use
	6-7	Reserved for national use
	8-9	Reserved for private use
Position 2 & 3, 00-99 time interval	0	Reserved for ISO use
	01-99	A value of 01 through 99 indicating the number of reiterations indicated in position 1

A.6 Batch/file transfer acknowledgement codes (bit 68)

Table A.6 lists the batch/file transfer acknowledgement codes.

Table A.6 — Batch/file transfer acknowledgement codes

Range	Codes	Description
0-Z Indicates if an acknowledgement is required	0	No acknowledgement required
	1	Acknowledgement required
	2	Acknowledgement required, end of transfer
	3	Positive acknowledgement
	4	Reserved for ISO use
	5	Reserved for ISO use
	6	Reserved for ISO use
	7	Negative acknowledgement, repeat requested
	8	Negative acknowledgement, no repeat
	9-I	Reserved for ISO use
	J-R	Reserved for national use
	S-Z	Reserved for private use

A.7 Composite data element dataset identifier allocations (see 6.5)

Table A.7 lists the composite data element message bit number and the data set identifier numbers that have been allocated.

Table A.7 — Composite dataset identifier allocations

Range	Dataset identifier	Description
Bit 34 Electronic commerce data	01-40	Reserved for ISO use
	41-55	Reserved for national use
	56-70	Reserved for private use
	71	Account based digital signature without certificate
	72	Public key certificate authentication data
	73-DF	Reserved for ISO use
	E0-EF	Reserved for national use
	F0-FE	Reserved for private use
Bit 43 Card acceptor name/location	01-40	Reserved for ISO use
	41-55	Reserved for national use
	56-70	Reserved for private use
	71	Card acceptor name/location data
	72-DF	Reserved for ISO use
	E0-EF	Reserved for national use
	F0-FE	Reserved for private use
Bit 44 Additional response data	01-40	Reserved for ISO use
	41-55	Reserved for national use
	56-70	Reserved for private use
	71	Additional response data
	72-DF	Reserved for ISO use
	E0-EF	Reserved for national use
	F0-FE	Reserved for private use
Bit 49 Verification data	01-40	Reserved for ISO use
	41-55	Reserved for national use
	56-70	Reserved for private use
	71	Verification request data

Table A.7 (*continued*)

Range	Dataset identifier	Description
	72	Verification results data
	73-DF	Reserved for ISO use
	E0-EF	Reserved for national use
	F0-FE	Reserved for private use
Bit 104 Transaction specific data	01-40	Reserved for ISO use
	41-55	Reserved for national use
	56-70	Reserved for private use
	71	Free form description data
	72	Invoicing header data
	73	Invoicing line item data
	74	Airline itinerary data - 1
	75	Airline itinerary data - 2
	76	Auto rental/vehicle data
	77	Lodging data
	78	Fleet card data
	79-BF	Reserved for ISO use
	C0-DF	Reserved for national use
	E0-FE	Reserved for private use

A.8 Fee type codes (bits 46, 66, 109, 110)

Table A.8 lists the fee type codes.

Table A.8 — Fee type codes

Range	Codes	Description
00-99	00	Transaction fee
	01	Transaction processing fee
	02	Fee collection fee
	03	File action fees
	04	Telex, telephone and cable charges
	05	Auto-telex charges
	06	Lost/stolen card report fees
	07	Card acceptor service fees
	08	Recovered card awards
	09	Invalid chargeback handling fee
	10	Recovery of copy/original fees
	11	Returned guaranteed cheque
	12	Emergency cash disbursement handling fee
	13	Arbitration cash disbursement handling fee
	14	Incorrect card acceptor identification/transaction data handling fee
	15	Currency conversion fee
	16	Special handling fee
	17	Investigation fees
	18	Emergency card replacement fee
	19	Warning bulletin handling fee
	20	Good faith acceptance
	21	Collection letters
	22-39	Reserved for ISO use
	40-69	Reserved for national use
	70-99	Reserved for private use

A.9 Function codes (bit 24)

Table A.9 lists the function codes.

Table A.9 — Function codes

Range	Codes	Description
000-099 Reserved for ISO use	000-999	Reserved
100-199 Used in 100, 101, 120, 121 and 140 messages to indicate type of authorization or verification transaction	100	Original authorization – amount accurate
	101	Original authorization – amount estimated
	102	Replacement authorization – amount accurate
	103	Replacement authorization – amount estimated
	104	Resubmission – amount accurate
	105	Resubmission – amount estimated
	106	Supplementary authorization – amount accurate
	107	Supplementary authorization – amount estimated
	108	Inquiry
	109	Address verification for billing address
	110	Address verification for ship to address
	111	Certificate request data verification
	112	Cheque verification
	113	Account verification
	114-159	Reserved for ISO use
	160-179	Reserved for national use
	180-199	Reserved for private use
200-299 Used in 200, 201, 220, 221 and 240 messages to indicate type of financial presentment	200	Original financial presentment request/advice
	201	Previously approved authorization – amount same
	202	Previously approved authorization – amount differs
	203	Resubmission of a previously denied financial presentment request
	204	Resubmission of a previously reversed financial presentment
	205	First representment full amount
	206	Second representment full amount
	207	Third or subsequent representment full amount
	208	Final representment full amount
	209	Incomplete account number on original financial presentment request
	210	Resubmission of a previously submitted financial presentment request
	211	First representment partial amount
	212	Second representment partial amount
	213	Third or subsequent representment partial amount
	214	Final representment partial amount
	215	Aggregation for accumulation transaction
	216	Card issuer back up total for accumulation transaction
	217	Truncation for accumulation transaction
	218-259	Reserved for ISO use
	260-279	Reserved for national use
	280-299	Reserved for private use

Table A.9 (*continued*)

Range	Codes	Description
300-399 Used in 304, 305, 324, 325 340, 344 350, 354, 362, 364, 372, and 374 messages to indicate file action required; use 302 when fields within a record are being replaced; if the entire record is being changed, code 304 is recommended	300	Reserved for ISO use
	301	Add record
	302	Change record
	303	Delete record
	304	Replace record
	305	Inquiry
	306	Replace file
	307	Add file
	308	Delete file
	309	Card administration
	310	Other
	311-359	Reserved for ISO use
	360-379	Reserved for national use
	380-399	Reserved for private use
400-449 Used in 420, 421 and 440 messages to indicate the function of the reversal	400	Full reversal, transaction did not complete as approved
	401	Partial reversal, transaction did not complete for full amount
	402-419	Reserved for ISO use
	420-439	Reserved for national use
	440-449	Reserved for private use
450-499 Used in 422, 423 and 442 messages to indicate the function of the chargeback	450	First chargeback, full
	451	Second chargeback, full
	452	Third or subsequent chargeback, full
	453	First chargeback, partial
	454	Second chargeback, partial
	455	Third or subsequent chargeback, partial
	456	Final chargeback, full amount
	457	Final chargeback, partial amount
	458-469	Reserved for ISO use
	470-489	Reserved for national use
	490-499	Reserved for private use
500-599 Used in 500, 501, 502, 503, 520, 521, 522, 523, 540 and 542 messages to indicate type of reconciliation	500	Final reconciliation
	501	Checkpoint reconciliation
	502	Final reconciliation in a specified currency
	503	Checkpoint reconciliation in a specified currency
	504	Request for reconciliation totals
	505-539	Reserved for ISO use
	540-569	Reserved for national use
	570-599	Reserved for private use

Table A.9 (*continued*)

Range	Codes	Description
600-649 Used in 602, 603, 612, 662, 672, 640 and 650 messages to indicate the type of retrieval data required or provided	600	Hard copy (original document) retrieval
	601	Hard copy (original document) repeat retrieval
	602	Hard copy (original document) retrieval fulfilment
	603	Photocopy (microfilm copy, photocopy or fax copy) retrieval
	604	Photocopy (microfilm copy, photocopy or fax copy) repeat retrieval
	605	Photocopy (microfilm copy, photocopy or fax copy) retrieval fulfilment
	606	Electronic image (photocopy) retrieval fulfilment
	607	Electronic image (photocopy) retrieval fulfilment network generated
	608	Substitute draft retrieval
	609	Substitute draft repeat retrieval
	610	Substitute draft retrieval fulfilment
	611	Electronic image (substitute draft) retrieval fulfilment
	612	Electronic image (substitute draft) retrieval fulfilment network generated
	613	Retrieval not fulfilled
	614-629	Reserved for ISO use
	630-639	Reserved for national use
	640-649	Reserved for private use
650-699 Used in 604, 605, 624, 625 and 644 messages for administrative messages	650	Unable to parse message
	651	MTI not recognized
	652	Message level error
	653	Batch/file level error
	654-669	Reserved for ISO use
	670-689	Reserved for national use
	689-699	Reserved for private use
700-799 Used in 720, 721, 740, 722, 723 and 742 messages to indicate type of fee collection transaction	700	Fee collection message
	701	Fee collection cancellation, full/partial
	702-759	Reserved for ISO use
	760-779	Reserved for national use
	780-799	Reserved for private use
800-809 Used in 804, 805, 824, 825 and 844 messages to indicate system conditions	800	Reserved for ISO use
	801	System condition/sign-on
	802	System condition/sign-off
	803	System condition/target system unavailable
	804	System condition/message originator's system in backup
	805	System condition/special instruction
	806	System condition/initiate alternate routing
	807-809	Reserved for ISO use

Table A.9 (*continued*)

Range	Codes	Description
810-819 Used in 804, 805, 824, 825 and 844 messages to support system security activity	810	Reserved for ISO use
	811	System security/request key change
	812	System security/security alert
	813	System security/password change
	814	System security/device authentication
	815	System security/ deliver key
	816	System security/ request key verification
	817-819	Reserved for ISO use
820-829 Used in 804, 805, 824, 825 and 844 messages to indicate system accounting	820	Reserved for ISO use
	821	System accounting/cutover
	822	System accounting/checkpoint
	823-829	Reserved for ISO use
830-839 Used in 804, 805, 824, 825 and 844 messages to indicate system audit controls	830	Reserved for ISO use
	831	System audit control/echo test
	832	System audit control/response received
	833-839	Reserved for ISO use
840-849 Used in 804, 805, 824, 825 and 844 messages to indicate batch/file transfer	840	Reserved for ISO use
	841	Start of batch/file transfer
	842	End of batch/file transfer
	843-849	Reserved for ISO use
850-859 Used in 804, 805, 824, 825 and 844 messages to indicate synchronization	850	Reserved for ISO use
	851	Exchange control, give token
	852	Clock synchronization
	853-859	Reserved for ISO use
860-879 Used in 804, 805, 824, 825 and 844 messages	860-879	Reserved for ISO use
880-889 Used in 804, 805, 824, 825 and 844 messages	880-889	Reserved for national use
890-899 Used in 804, 805, 824, 825 and 844 messages	890-899	Reserved for private use
900-999 Reserved	900-939	Reserved for ISO use
	940-969	Reserved for national use
	970-999	Reserved for private use

A.10 Message error codes (bit 18)

Table A.10 lists the message error codes.

Table A.10 — Message error codes table

Range	Codes	Description
0000-9999	0001	Required data element missing
	0002	Invalid length
	0003	Invalid value
	0004	Amount format error
	0005	Date format error
	0006	Account format error
	0007	Name format error
	0008	Format error other, e.g. data element format is not valid
	0009	Inconsistent data with POS data code, e.g. No track 1 or track 2 for an indicated magnetic stripe read
	0010	Inconsistent data, does not match original request
	0011	Other inconsistent data
	0012	Recurring data error
	0013	Customer vendor format error
	0014-3999	Reserved for ISO use
	4000-5999	Reserved for national use
	6000-9999	Reserved for private use

A.11 Message reason codes (bit 25)

Table A.11 lists the message reason codes.

Table A.11 — Message reason codes

Range	Codes	Description
0000-0999 Reserved for ISO	0000-0999	Reserved
1000-1499 Reason for an authorization/financial presentment advice/notification message rather than a request message	1000	Stand-in processing at the card issuer's option
	1001	Card issuer signed off
	1002	Card issuer timed out on original request
	1003	Card issuer unavailable
	1004	Terminal processed
	1005	ICC processed
	1006	Under floor limit
	1007	Stand-in processing at the acquirer's option
	1008	Stand-in processing at the receiver's option
	1009	Receiver signed off
	1010	Receiver timed out on original request
	1011	Receiver unavailable
	1012-1150	Reserved for ISO use
	1151-1375	Reserved for national use
	1376-1499	Reserved for private use

Table A.11 (*continued*)

Range	Codes	Description
1500-1999 Reason for an authorization/financial presentment request message rather than an advice/notification message	1500	ICC application unable to process
	1501	Reserved for ISO use
	1502	ICC random selection
	1503	Terminal random selection
	1504	Terminal not able to process ICC
	1505	On line forced by ICC
	1506	On line forced by card acceptor
	1507	On line forced by CAD
	1508	On line forced by terminal
	1509	On line forced by card issuer
	1510	Over floor limit
	1511	Card acceptor suspicious
	1512-1650	Reserved for ISO use
	1651-1775	Reserved for national use
	1776-1999	Reserved for private use
2000-2999 Reason for a representment	2000	Reserved for ISO use
	2001	Invalid acquirer's reference number on chargeback, documentation was received or was not required
	2002	Non receipt of required documentation to support chargeback
	2003	Correct transaction date provided
	2004	Invalid acquirer's reference number on chargeback, documentation was received
	2005	Correct card acceptor location/description provided
	2006	Reserved for ISO use
	2007	Transaction did not exceed card acceptor floor limit
	2008	Card issuer authorised transaction
	2009	Reserved for ISO use
	2010	Reserved for ISO use
	2011	Credit previously issued
	2012	Reserved for ISO use
	2013	Chargeback remedied, see corresponding documentation
	2014	Duplicate chargeback
	2015	Past chargeback time limit
	2016	Requested transaction documentation provided (hardship variance)
	2017	Invalid member message text
	2018	Correct card acceptor category code provided
	2019	Authorization advised suspicious
	2020	No authorization request required or attempted
	2021	Account not listed on the applicable warning bulletin as of the transaction date
	2022	Documentation received was illegible
	2023	Documentation received was invalid/incomplete
	2024-2399	Reserved for ISO use
	2400-2699	Reserved for national use
	2700-2999	Reserved for private use

Table A.11 (*continued*)

Range	Codes	Description
3000-3999 Reason for a file action	3000	Lost card
	3001	Stolen card
	3002	Undelivered card
	3003	Counterfeit card
	3004	Other
	3005-3399	Reserved for ISO use
	3400-3699	Reserved for national use
	3700-3999	Reserved for private use
4000-4499 Reason for a reversal	4000	Customer cancellation
	4001	Unspecified, no action taken
	4002	Suspected malfunction
	4003	Format error, no action taken
	4004	Completed partially
	4005	Original amount incorrect
	4006	Response received too late
	4007	Card acceptor device unable to complete transaction
	4008	Deposit out of balance
	4009	No check in envelope
	4010	Payment out of balance
	4011	Deposit out of balance/applied contents
	4012	Payment out of balance/applied contents
	4013	Unable to deliver message to point of service
	4014	Suspected malfunction/card retained
	4015	Suspected malfunction/card returned
	4016	Suspected malfunction/track 3 not updated
	4017	Suspected malfunction/no cash dispensed
	4018	Timed-out at taking money/no cash dispensed
	4019	Timed-out at taking card/card retained and no cash dispensed
	4020	Invalid response, no action taken
	4021	Timeout waiting for response
	4022-4199	Reserved for ISO use
	4200-4350	Reserved for national use
	4351-4499	Reserved for private use
4500-4999 Reason for a chargeback	4500	Reserved for ISO use
	4501	Requested transaction information not received
	4502	Requested/required information illegible or missing
	4503-4006	Reserved for ISO use
	4507	Warning bulletin file
	4508	Requested/required authorization not obtained
	4509-4011	Reserved for ISO use
	4512	Account number not on file
	4513-4523	Reserved for ISO use
	4524	Earlier warning bulletin protection

Table A.11 (*continued*)

Range	Codes	Description
	4525-4030	Reserved for ISO use
	4531	Transaction amount differs
	4532-4533	Reserved for ISO use
	4534	Duplicate processing
	4535	Card not valid or expired
	4536	Reserved for ISO use
	4537	No cardholder authorization
	4538-4539	Reserved for ISO use
	4540	Fraudulent processing of transaction
	4541	Cancelled recurring transaction
	4542	Late presentment
	4543-4545	Reserved for ISO use
	4546	Correct transaction currency code not provided
	4547	Exceeds floor limit, not authorised – a fraudulent transaction
	4548	Reserved for ISO use
	4549	Questionable card acceptor activity
	4550	Credit posted as a purchase
	4551-4552	Reserved for ISO use
	4553	Not as described
	4554	Cardholder dispute, not elsewhere classified
	4555	Non receipt of merchandise
	4556	Defective merchandise
	4557	Card activated telephone transaction
	4558	Reserved for ISO use
	4559	Services not rendered
	4560	Credit not processed
	4561	Reserved for ISO use
	4562	Counterfeit transaction, magnetic stripe authorization fraud
	4563	Non receipt of required documentation to support representment
	4564	Documentation received was illegible
	4565	Documentation received was invalid/incomplete
	4566	Chargeback contained a valid acquirer's reference number
	4567	Invalid acquirer's reference number on representment, documentation was received or was not required
	4568	Invalid acquirer's reference number on representment, documentation was received
	4569-4572	Reserved for ISO use
	4573	Expired card
	4574-4577	Reserved for ISO use
	4578	Ineligible transaction
	4579	Requested transaction receipt not received

Table A.11 (*continued*)

Range	Codes	Description
	4580	Processing error
	4581	Missing imprint
	4582	Reserved for ISO use
	4583	Non possession of card
	4584	Missing signature
	4585	Reserved for ISO use
	4586	Alteration of amount
	4587	Domestic transaction receipt processing violation
	4588-4589	Reserved for ISO use
	4590	Non receipt of merchandise, non receipt of cash at ATM or load transaction value at ATM or load device
	4591-4593	Reserved for ISO use
	4594	Cancelled guaranteed reservation
	4595	Advance lodging deposit
	4596	Transaction exceeds limited amount
	4597-4649	Reserved for ISO use
	4650-4749	Reserved for national use
	4750-4999	Reserved for private use
5000-5999 Reason for a reconciliation	5000-5299	Reserved for ISO use
	5300-5599	Reserved for national use
	5600-5999	Reserved for private use
6000-6499 Reason for a retrieval or retrieval fulfilment	6001-6004	Reserved for ISO use
	6005	Cardholder does not agree with amount billed
	6006-6020	Reserved for ISO use
	6021	Cardholder does not recognize transaction
	6022	ICC transaction certificate and associated data requested
	6023	Cardholder needs information for personal records
	6024-6027	Reserved for ISO use
	6028	Request for copy bearing signature
	6029	Travel and entertainment document request
	6030-6031	Reserved for ISO use
	6032	Copy request because original lost in transit
	6033-6034	Reserved for ISO use
	6035	Written cardholder request for original due to inadequate copy of mail/phone order or recurring transaction receipt
	6036	Legal process request for original, e.g. a subpoena
	6037	Received copy illegible
	6038	Paper/handwriting analysis request
	6039-6040	Reserved for ISO use
	6041	Fraud investigation
	6042	Potential arbitration, chargeback or compliance documentation required
	6043	Retrieval not fulfilled – not able to trace original transaction
	6044	Retrieval not fulfilled – invalid reference number

Table A.11 (*continued*)

Range	Codes	Description
	6045	Retrieval not fulfilled – reference number/PAN incompatible
	6046	Requested documentation supplied
	6047	Retrieval cannot be fulfilled – required/requested documentation is not available
	6048	Retrieval will not be fulfilled – request for an item that is not required to be provided
	6049	Retrieval cannot be fulfilled – ICC transaction certificate and associated data is not available
	6050-6199	Reserved for ISO use
	6200-6299	Reserved for national use
	6300-6499	Reserved for private use
6500-6999 Reason for an administrative message	6500-6599	Reserved for ISO use
	6600-6799	Reserved for national use
	6800-6999	Reserved for private use
7000-7999 Reason for a fee collection message	7000-7299	Reserved for ISO use
	7300-7599	Reserved for national use
	7600-7999	Reserved for private use
8000-8099 Reason for a network management message	8000	Start batch/file transfer, no recovery procedure
	8001	Start batch/file transfer, recovery procedure
	8002	End batch/file
	8003-8059	Reserved for ISO use
	8060-8069	Reserved for national use
	8070-8099	Reserved for private use
8100-8199 Reason for a key change message	8100	Standard key exchange/activation key life cycle
	8101	Standard key exchange/activation keys out of sync
	8102	Standard key exchange/activation security reasons
	8103	Standard key exchange key deactivation
	8104	Standard key exchange verification key life cycle
	8105	Standard key exchange keys out of sync
	8103-8159	Reserved for ISO use
	8160-8169	Reserved for national use
	8170-8199	Reserved for private use
8200-8999 Reserved	8200-8399	Reserved for ISO use
	8400-8699	Reserved for national use
	8700-8999	Reserved for private use
9000-9999 Reserved	9000-9299	Reserved for ISO use
	9300-9599	Reserved for national use
	9600-9999	Reserved for private use

A.12 Message type identifier codes (see 5.1.2.3)

A.12.1 All possible message type identifier codes

The message type identifier is a three-position code. Table A.12 gives the possible values of each position of the message type identifier code.

Table A.12 — Message type identifiers

Range	Codes	Description
First position Message class	0	Reserved for ISO use
	1	Authorization
	2	Financial presentment
	3	File action
	4	Reversal/chargeback
	5	Reconciliation
	6	Administrative
	7	Fee collection
	8	Network management
	9	Reserved for ISO use
Second position Message function	0	Request
	1	Request response
	2	Advice
	3	Advice response
	4	Notification
	5	Notification acknowledgement
	6	Instruction
	7	Instruction acknowledgement
	8	Reserved for ISO use
	9	Reserved for ISO use
Third position Transaction originator	0	Acquirer
	1	Acquirer repeat
	2	Card issuer
	3	Card issuer repeat
	4	Other originator
	5	Other originator repeat
	6	Reserved for ISO use
	7	Reserved for ISO use
	8	Reserved for ISO use
	9	Reserved for ISO use

A.12.2 Allocated message type identifier codes

The message type identifier is a three-position code. Table A.13 gives the codes allocated within this part of ISO 8583.

Table A.13 — Allocated message type identifiers

Message class	Originator	Request	Request repeat	Request response	Advice	Advice repeat	Advice response	Notification	Notification acknow-ledgement	Instruction	Instruction acknow-ledgement
Authorization	Acquirer	100	101	110	120	121	130	140	150		
Verification	Other	104	105	114	124	125	134	144	154		
Financial presentment	Acquirer	200	201	210	220	221	230	240	250		
File action	Acquirer							340	350		
	Card issuer									362	372
	Other	304	305	314	324	325	334	344	354	364	374
Reversal	Acquirer				420	421	430	440	450		
Chargeback	Card issuer				422	423	432	442	452		
Reconciliation	Acquirer	500	501	510	520	521	530	540	550		
	Card issuer	502	503	512	522	523	532	542	552		
Administration	Acquirer							640	650		
	Card issuer	602	603	612						662	672
	Other	604	605	614	624	625	634	644	654		
Fee collection	Acquirer				720	721	730	740	750		
	Card issuer				722	723	732	742	752		
Network management	Other	804	805	814	824	825	834	844	854		

A.13 Fleet motor fuel prompt codes (bit 104-78)

Table A.14 lists the fleet motor fuel prompt codes.

Table A.14 — Fleet motor fuel prompt codes

Range	Codes	Description
0-9 Indicates the type of prompts provided	0	Reserved for ISO use
	1	Prompts for identification number and odometer reading
	2	Prompts for vehicle number and odometer reading
	3	Prompts for driver number and odometer reading
	4	Prompts for odometer reading only
	5	No prompts issued
	6	Reserved for ISO use
	7	Reserved for ISO use
	8	Reserved for national use
	9	Reserved for private use
	Space	Unknown

A.14 Fleet motor fuel service type codes (bit 104-78)

Table A.15 lists the fleet motor fuel service codes.

Table A.15 — Fleet motor fuel service type codes

Range	Codes	Description
0-9 Indicates the type of service provided	0	Reserved for ISO use
	1	Self-service
	2	Full service
	3	Only non-fuel products purchased
	4-5	Reserved for ISO use
	6-7	Reserved for national use
	8-9	Reserved for private use
	Space	Unknown

A.15 Point of service capability (bit 27)

A.15.1 POS card reading capability

Table A.16 lists the value attributed to each bit of the 32 bits (four characters) which indicate the card reading capabilities of the POS.

Table A.16 — POS card reading capability

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Information not taken from card, e.g. RFID	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical (key entry or OCR reading of embossing or printed data either at time of transaction or after the event)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bar code	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Magnetic stripe	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
ICC	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Account data on file	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32
Reserved for ISO use	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Reserved for national use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

A.15.2 POS cardholder verification capability

Table A.17 lists the value attributed to each bit of the 32 bits which indicate the cardholder verification capabilities of the POS.

Table A.17 — POS cardholder verification capability

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
None	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manual signature verification	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Online PIN	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Offline PIN in clear	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Offline PIN encrypted	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Offline digitized signature analysis	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Offline biometrics	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Other manual verification, e.g. passport or driver's licence	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Offline biographics	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Account based digital signature	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Public key based digital signature	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32
Reserved for ISO use	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Reserved for national use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

A.16 Point of service data code (bit 22)

A.16.1 Card reading method used at POS

Table A.18 lists the value attributed to each bit of the 32 bits (four characters) which indicate the card reading method actually used by the POS or how account data was obtained for this transaction.

Table A.18 — Card reading method used at POS

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Information not taken from card, e.g. RFID	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical (key entry or OCR reading of embossing or printed data either at time of transaction or after the event)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bar code	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Magnetic stripe	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
ICC	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Account data on file	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
ICC read attempted but failed	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Magnetic stripe read attempted but failed	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Fallback	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32
Reserved for ISO use	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

A.16.2 Cardholder verification method used at POS

Table A.19 lists the value attributed to each bit of the 32 bits (four characters) which indicate the cardholder verification method actually used by the POS.

Table A.19 — Cardholder verification method used at POS

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
None	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manual signature verification	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Online PIN	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Offline PIN in clear	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Offline PIN encrypted	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Offline digitized signature analysis	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Offline biometrics	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Other manual verification, e.g. passport or driver's licence	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Offline biographics	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Account based digital signature	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Public key based digital signature	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32
Reserved for ISO use	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

A.16.3 POS environment

Table A.20 lists the value attributed to each bit of the 32 bits (four characters) which indicate the POS environment.

Table A.20 — POS environment

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Attended POS	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unattended, details unknown	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mail order/telephone order	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Electronic commerce	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Mobile commerce	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Recurring transaction	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Stored details	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Cardholder activated terminal (CAT)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
ATM on bank premises	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
ATM off bank premises	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Deferred transaction	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Installment transaction	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for ISO use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32
Reserved for ISO use	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

A.16.4 Security characteristics

Table A.21 lists the value attributed to each bit of the 32 bits (four characters) which indicate the security characteristics.

Table A.21 — Security characteristics

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private network	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Open network (Internet)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Channel MACing	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pass through MACing	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Channel encryption	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
End-to-end encryption	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Private algorithm encryption	-	-	-	-	-	-		1	-	-	-	-	-		-	-
PKI encryption	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Private algorithm MACing	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Standard algorithm MACing	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Cardholder managed end-to-end encryption	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Cardholder managed point-to-point encryption	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Merchant managed end-to-end encryption	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Merchant managed point-to-point encryption	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Acquirer managed end-to-end encryption	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32
Acquirer managed point-to-point encryption	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reserved for ISO use	-	-	-	-	-	-		1	-	-	-	-	-		-	-
Reserved for national use	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Reserved for national use	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Reserved for private use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

A.17 Processing code (bit 3)

A.17.1 Transaction type codes

Table A.22 lists the *Transaction type* codes and Table A.23 lists the *Account type* codes that together make up the processing code.

Table A.22 — Transaction type codes

Range	Codes	Description
00-1Z Debits	00	Goods and service
	01	Cash (ATM)
	02	Adjustment
	03	Cheque guarantee (funds guaranteed)
	04	Cheque verification (funds available but not guaranteed)
	05	Eurocheque
	06	Traveller cheque
	07	Letter of credit
	08	Giro (postal banking)
	09	Goods and services with cash disbursement
	10	Non-cash financial instrument, e.g. wire transfer
	11	Quasi-cash and scrip
	12	Cash (manual)
	13	Funds withdrawal for electronic purse; unlinked loads to funds issuer
	14	Benefits purchase with cash-back
	15	Benefit cash withdrawal
	16	Benefit cash purchase
	17	Funds withdrawal for electronic purse; unlinked unloads to card issuer
	18-1J	Reserved for ISO use
	1K-1R	Reserved for national use
	1S-1Z	Reserved for private use
20-2Z Credits	20	Returns
	21	Deposits
	22	Adjustment
	23	Cheque deposit guarantee
	24	Cheque deposit
	25	Deposit with cash-back
	26	Cheque deposit with cash-back
	27	Funds deposit from electronic purse; unlinked unloads to funds issuer
	28	Funds deposit from electronic purse; unlinked loads to card issuer
	29	Original credit e.g. wire transfer, gaming wins
	2A-2J	Reserved for ISO use
	2K-2R	Reserved for national use
	2S-2Z	Reserved for private use

Table A.22 (*continued*)

Range	Codes	Description
30-3Z Inquiry/Verification services	30	Available funds inquiry
	31	Balance inquiry
	32	Ledger balance inquiry
	33	Verification inquiry
	34	Statement inquiry
	35	Cleared item inquiry
	36	Cash balance inquiry
	37-3J	Reserved for ISO use
	3K-3R	Reserved for national use
	3S-3Z	Reserved for private use
40-4Z Transfer services	40	Cardholder accounts transfer
	41-4J	Reserved for ISO use
	4K-4R	Reserved for national use
	4S-4Z	Reserved for private use
50-5Z Payment services	50	Customer generated/initiated payment
	51	Account verification
	52	Payment return
	53-5J	Reserved for ISO use
	5K-5R	Reserved for national use
	5S-5Z	Reserved for private use
60-6Z Electronic purse services	60	Load value; linked loads
	61	Unload value; linked unloads
	62	Transfer value
	63	Administrative
	64	Currency exchange
	65-6J	Reserved for ISO use
	6K-6R	Reserved for national use
	6S-6Z	Reserved for private use
70-7Z Administrative	70	Pin change
	71	PIN verify
	72	Activation
	7K-7R	Reserved for national use
	7S-7Z	Reserved for private use
80-8Z Reserved	80-8J	Reserved for ISO use
	8K-8R	Reserved for national use
	8S-8Z	Reserved for private use
90-9Z Reserved	90-9J	Reserved for ISO use
	9K-9R	Reserved for national use
	9S-9Z	Reserved for private use
A0-ZZ Reserved	A0 IZ	Reserved for ISO use
	J0-PZ	Reserved for national use
	R0-ZZ	Reserved for private use

A.17.2 Account type codes

Table A.23 — Account type codes

Range	Codes	Description
00-09 Default	00	Default – unspecified
	01-02	Default – reserved for ISO use
	03-07	Default – reserved for national use
	08-09	Default – reserved for private use
10-19 Savings account	10	Savings account – default
	11	Savings account – money market
	12	Savings account – certificate of deposit
	13-15	Savings account – reserved for ISO use
	16-17	Savings account – reserved for national use
	18-19	Savings account – reserved for private use
20-29 Cheque account	20	Cheque account – default
	21	Cheque account – money market checking
	22-22	Cheque account – reserved for ISO use
	23-27	Cheque account – reserved for national use
	28-29	Cheque account – reserved for private use
30-39 Credit facility	30	Credit facility – default
	31	Credit facility – line of credit
	32	Credit facility – instalment loan
	33	Credit facility – mortgage loan
	34	Credit facility – home equity loan
	35-36	Credit facility – reserved for ISO use
	37-38	Credit facility – reserved for national use
	39	Credit facility – reserved for private use
40-49 Universal account	40	Universal account – default
	41-42	Universal account – reserved for ISO use
	43-47	Universal account – reserved for national use
	48-49	Universal account – reserved for private use
50-59 Investment account	50	Investment account – default
	51	Investment account – stock or bond
	52	Investment account – retirement account
	53	Investment account – revolving loan account
	54-55	Investment account – reserved for ISO use
	56-57	Investment account – reserved for national use
	58-59	Investment account – reserved for private use
60-69 Electronic purse card account	60	Electronic purse card account – default
	61-63	Electronic purse card account – reserved for ISO use
	64-66	Electronic purse card account – reserved for national use
	67-69	Electronic card account – reserved for private use
70-79 Reserved	70-75	Reserved for ISO use
	76-77	Reserved for national use
	78-79	Reserved for private use
80-89 Reserved	80-85	Reserved for ISO use
	86-87	Reserved for national use
	88-89	Reserved for private use
90-99 Reserved	90-95	Reserved for ISO use
	96-97	Reserved for national use
	98-99	Reserved for private use
9A-ZZ Reserved	9A IZ	Reserved for ISO use
	J0-PZ	Reserved for national use
	R0-ZZ	Reserved for private use

A.18 Tag assignments (see 6.2.7)

Table A.24 lists the tag values assigned in this part of ISO 8583.

Table A.24 — Assigned tag values

Tag assignment	Name	Usage
80	Authentication code	34-72
81	Card acceptor additional address information	43-71

A.19 Address verification result codes (bit 49-72)

Table A.25 lists the address verification result codes.

Table A.25 — Address verification result codes

Range	Codes	Description
0-Z Indicates the result of address verification	0-9	Reserved for ISO use
	A	Reserved for private use
	B	Street addresses match; postal code not verified due to incompatible formats
	C	Street address and postal code not verified due to incompatible formats
	D	Reserved for private use
	E-F	Reserved for private use
	G	Address information not verified
	H	Reserved for private use
	I	Address verification service not performed
	J-L	Reserved for private use
	M	Street addresses and postal codes match
	N	No match; neither the street addresses nor the postal codes match
	O	Reserved for private use
	P	Postal codes match; street address not verified due to incompatible formats
	Q	Reserved for private use
	R	Retry, system unable to process
	S	Service not supported
	T	Reserved for private use
	U-V	Reserved for national use
	W-Z	Reserved for private use

Annex B
(normative)

Data elements in bit number order

B.1 Data elements

Table B.1 specifies data elements in bit number order.

Table B.1 — Data elements in bit number order

Bit	Cons	Comp	Name	Format	Representation
1			Continuation bit		b 8
2			Primary account number (PAN)	LLVAR	n..19
3	X		Processing code		an 6
	3-1		Transaction type code		an 2
	3-2		Account type code 1		an 2
	3-3		Account type code 2		an 2
4	X		Amount transaction		n 16
	4-1		Currency code amount transaction		n 3
	4-2		Currency minor unit amount transaction		n 1
	4-3		Value amount transaction		n 12
5	X		Amount reconciliation		n 16
	5-1		Currency code amount reconciliation		n 3
	5-2		Currency minor unit amount reconciliation		n 1
	5-3		Value amount reconciliation		n 12
6	X		Amount cardholder billing		n 16
	6-1		Currency code amount cardholder billing		n 3
	6-2		Currency minor unit amount cardholder billing		n 1
	6-3		Value amount cardholder billing		n 12
7			Date and time transmission	MMDDhhmmss	n 10
8	X		Amount cardholder billing fee		n 12
	8-1		Currency code amount cardholder billing fee		n 3
	8-2		Currency minor unit amount cardholder billing fee		n 1
	8-3		Value amount cardholder billing fee		n 8
9			Conversion rate reconciliation		n 8
10			Conversion rate cardholder billing		n 8
11			Systems trace audit number		n 12
12	X		Date and time local transaction	CCYYMMDDhhmmss	n 14
	12-1		Date local transaction	CCYYMMDD	n 8
	12-2		Time local transaction	hhmmss	n 6
13			Date effective	CCYYMM	n 6
14			Date expiration	YYMM	n 4
15			Date settlement	CCYYMMDD	n 8
16			Date conversion	MMDD	n 4
17			Date capture	MMDD	n 4

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
18	X		Message error indicator	LLLVAR	ansb..140
	18-1		Error severity code		n 2
	18-2		Message error code		n 4
	18-3		Data element in error		n 3
	18-4		Data sub-element in error		n 2
	18-5		Dataset identifier in error		b 1
	18-6		Dataset bit or tag in error		b 2
19			Country code acquiring institution		n 3
20			Country code primary account number (PAN)		n 3
21	X		Transaction life cycle identification data		ans 22
	21-1		Life cycle support indicator		ans 1
	21-2		Life cycle trace identifier		ans 15
	21-3		Life cycle transaction sequence number		n 2
	21-4		Life cycle authentication token		n 4
22	X		POS data code		b 16
	22-1		Card reading method used at POS		b 4
	22-2		Cardholder verification method used at POS		b 4
	22-3		POS environment		b 4
	22-4		Security characteristics		b 4
23			Card sequence number		n 3
24			Function code		n 3
25			Message reason code		n 4
26			Merchant category code		n 4
27	X		POS capability		anb 27
	27-1		POS card reading capability		b 4
	27-2		POS cardholder verification capability		b 4
	27-3		Approval code length		n 1
	27-4		Cardholder receipt data length		n 3
	27-5		Card acceptor receipt data length		n 3
	27-6		Cardholder display data length		n 3
	27-7		Card acceptor display data length		n 3
	27-8		ICC scripts data length		n 3
	27-9		Magnetic stripe track 3 rewrite capability		a 1
	27-10		Card capture capability		a 1
	27-11		Pin input length capability		b 1
28			Date reconciliation	CCYYMMDD	n 8
29			Reconciliation indicator		n 3
30	X		Amounts original		n 32
	30-1		Original amount transaction		n 16
	30-1.1		Currency code original amount transaction		n 3
	30-1.2		Currency minor unit original amount transaction		n 1
	30-1.3		Value original amount transaction		n 12
	30-2		Original amount reconciliation		n 16
	30-2.1		Currency code original amount reconciliation		n 3
	30-2.2		Currency minor unit original amount reconciliation		n 1
	30-2.3		Value original amount reconciliation		n 12

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
31			Acquirer reference number		n 23
	31-1		User format identifier		n 1
	31-2		Acquirer number		n 6
	31-3		Julian processing date	YDDD	n 4
	31-4		Sequence number		n 11
	31-5		Luhn check digit		n 1
32			Acquiring institution identification code	LLVAR	n..11
33			Forwarding institution identification code	LLVAR	n..11
34		X	Electronic commerce data	LLLLVAR	b..9999
		34-71	Account based digital signature	LLVAR	b..90
		34-72	Authentication code	Tag 80	ansb..50
		34-72	Card acceptor certificate serial number	LLVAR	b..16
		34-72	Cardholder certificate serial number	LLVAR	b..16
		34-72	TransStain		b 20
		34-72	XID		b 20
35			Track 2 data	LLVAR	z..37
36			Track 3 data	LLLVAR	z..104
37			Retrieval reference number		anp 12
38			Approval code		anp 6
39			Action code		n 4
40			Service code		n 3
41			Card acceptor terminal identification		ans 16
42			Card acceptor identification code	LLVAR	ans..35
43		X	Card acceptor name/location	LLLLVAR	ansb..9999
		43-71	Card acceptor additional address information	Tag 81	an..256
		43-71	Card acceptor additional contact information	LLVAR	ans..30
		43-71	Card acceptor city	LLVAR	ans..50
		43-71	Card acceptor country code		a 3
		43-71	Card acceptor customer service phone number		ans 16
		43-71	Card acceptor e-mail address	LLVAR	ans..99
		43-71	Card acceptor internet URL	LLLVAR	ans..255
		43-71	Card acceptor name	LLVAR	ans..50
		43-71	Card acceptor phone number		ans 16
		43-71	Card acceptor postal code		ans 10
		43-71	Card acceptor state province or region code		ans 3
		43-71	Card acceptor street address	LLVAR	ans..99
44		X	Additional response data	LLLLVAR	ansb..9999
		44-71	Card acceptor display data	LLVAR	ans. 99
		44-71	Card acceptor receipt data	LLVAR	ans..99
		44-71	Card issuer telephone number		ans 16
		44-71	Cardholder receipt data	LLVAR	ans..99
		44-71	Cardholder display data	LLVAR	ans..99
45			Track 1 data	LLVAR	ans..76

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
46	X		Amounts fees	LLLVAR	ans..216
	46-1		Fee type code		n 2
	46 –2		Amount fee		xn 13
	46-2.1		Currency code amount fee		n 3
	46-2.2		Currency minor unit amount fee		n 1
	46-2.3		Value amount fee		n 8
	46-3		Conversion rate fee		n 8
	46-4		Amount reconciliation fee		xn 13
	46-4.1		Currency code amount reconciliation fee		n 3
	46-4.2		Currency minor unit reconciliation fee		n 1
	46-4.3		Value reconciliation fee		n 8
47			Additional data national	LLLVAR	ans..999
48			Additional data private	LLLVAR	ans..999
49		X	Verification data	LLLLVAR	ans..9999
		49-71	Additional identification reference number	LLVAR	ans..30
		49-71	Additional identification type		n 1
		49-71	Card verification data		n 4
		49-71	Cardholder billing address compressed		ans 16
		49-71	Cardholder billing postal code		ans 10
		49-71	Cardholder billing street address		ans 40
		49-72	Address verification result code		an 1
50-51			Reserved for ISO	LLLVAR	ansb..9999 [a]
52			PIN data		b 8
53			Security related control information	LLVAR	b..48
54	X		Amounts additional	LLLVAR	ans..126
	54-1		Account type additional amounts		an 2
	54-2		Amount type additional amounts		an 2
	54-3		Amount additional amounts		xn 17
	54-3.1		Currency code amount additional amounts		n 3
	54-3.2		Currency minor unit amount additional amounts		n 1
	54-3.3		Value amount additional amounts		n 12
55		X	ICC system related data	LLLLVAR	b..9999
56	X		Original data elements	LLVAR	n..41
	56-1		Original message type identifier		n 4
	56-2		Original system trace audit number		n 12
	56-3		Original date and time local transaction	CCYYMMDDhhmmss	n 14
	56-4		Original acquiring institution identification code		n..11
57			Authorization life cycle code		n 3
58			Authorizing agent institution identification code	LLVAR	n..11
59			Transport data	LLLVAR	ans..999
60-61			Reserved for national use	LLLVAR	ans..999 [a]
62-63			Reserved for private use	LLLVAR	ans..999 [a]
64 or 128			MAC field		b 4

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
65			Reserved for ISO use		b 8
66	X		Amounts original fees	LLLVAR	ans..216
	66-1		Original fee type code		n 2
	66-2		Original amount fee		xn 13
	66-2.1		Currency code original amount fee		n 3
	66-2.2		Currency minor unit original amount fee		n 1
	66-2.3		Value original amount fee		n 8
	66-3		Original conversion rate fee		n 8
	66-4		Original amount reconciliation fee		xn 13
	66-4.1		Currency code original amount reconciliation fee		n 3
	66-4.2		Currency minor unit original amount reconciliation fee		n 1
	66-4.3		Value original amount reconciliation fee		n 8
67			Extended payment data		n 2
68	X		Batch/file transfer message control		an 9
	68-1		Batch/file transfer acknowledgement code		an 1
	68-2		Batch/file transfer message sequence number		n 8
69	X		Batch/file transfer control data		ans 40
	69-1		Batch/file transfer message count		n 8
	69-2		Batch/file transfer file identification		ans 32
70	X		File transfer description data		n 18
	70-1		File transfer file size		n 6
	70-2		File transfer elementary data record count		n 6
	70-3		File transfer remaining elementary data record count		n 6
71			Reserved for ISO use	LLLLVAR	ansb..9999 [a]
72			Data record	LLLLVAR	ansb..9999
73			Date action	CCYYMMDD	n 8
74	X		Reconciliation data primary		n 156
	74-1		Credits amount		n 16
	74-2		Credits number		n 10
	74-3		Credits chargeback amount		n 16
	74-4		Credits chargeback number		n 10
	74-5		Credits reversal amount		n 16
	74-6		Credits reversal number		n 10
	74-7		Debits amount		n 16
	74-8		Debits number		n 10
	74-9		Debits chargeback amount		n 16
	74-10		Debits chargeback number		n 10
	74-11		Debits reversal amount		n 16
	74-12		Debits reversal number		n 10

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
75	X		Reconciliation data secondary		n 90
	75-1		Authorizations number		n 10
	75-2		Authorizations reversal number		n 10
	75-3		Inquiries reversal number		n 10
	75-4		Inquiries number		n 10
	75-5		Fee collections number		n 10
	75-6		Payments number		n 10
	75-7		Payments reversal number		n 10
	75-8		Transfer number		n 10
	75-9		Transfer reversal number		n 10
76-92			Reserved for ISO use	LLLLVAR	ansb..9999 [a]
93			Transaction destination institution identification code	LLVAR	n..11
94			Transaction originator institution identification code	LLVAR	n..11
95			Card issuer reference data	LLVAR	ans..99
96			Key management data	LLLVAR	b..999
97	X		Amount net reconciliation		xn 21
	97-1		Currency code amount net reconciliation		n 3
	97-2		Currency minor unit amount net reconciliation		n 1
	97-3		Value amount net reconciliation		xn 17
98			Payee		ans 25
99			Settlement institution identification code	LLVAR	an..11
100			Receiving institution identification code	LLVAR	n..11
101			File name	LLVAR	ans..99
102			Account identification 1	LLVAR	ans..28
103			Account identification 2	LLVAR	ans..28
104		X	Transaction specific data	LLLLVAR	ansb..9999
		104-71	Free-form description data	LLLVAR	ans..999
		104-72	Invoice alternate tax identifier		ans 15
		104-72	Invoice amount alternate tax		n 12
		104-72	Invoice amount alternate tax indicator	Y = yes N = no space = unknown	as 1
		104-72	Invoice amount bottom line discount		n 12
		104-72	Invoice amount duty		n 12
		104-72	Invoice amount freight excluding tax		n 12
		104-72	Invoice amount freight including tax		n 12
		104-72	Invoice amount total tax		n 12
		104-72	Invoice card acceptor customer reference number	LLVAR	an..17
		104-72	Invoice card acceptor invoice reference number	LLVAR	an..12
		104-72	Invoice card acceptor order number	LLVAR	an..15
		104-72	Invoice card acceptor tax reference number	LLVAR	an..20
		104-72	Invoice card acceptor type		ans 4
		104-72	Invoice cardholder order reference number	LLVAR	an..22

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
		104-72	Invoice cardholder's tax reference number	LLVAR	an..13
		104-72	Invoice cost centre	LLVAR	a..20
		104-72	Invoice customer reference	LLVAR	ans..20
		104-72	Invoice destination country code		an 3
		104-72	Invoice destination postal code	LLVAR	an..10
		104-72	Invoice destination state/province code		ans 3
		104-72	Invoice freight tax rate		n 4
		104-72	Invoice order date	CCYYMMDD	n 8
		104-72	Invoice original invoice number	LLVAR	an..15
		104-72	Invoice ship from postal code	LLVAR	an..10
		104-72	Invoice tax indicator	0 = Tax not included 1 = Tax included	n 1
		104-72	Invoice value excluding tax		n 12
		104-73	Line item amount discount		n 12
		104-73	Line item amount tax		n 12
		104-73	Line item commodity code	LLVAR	an..16
		104-73	Line item dataset sequence number		b 2
		104-73	Line item descriptor	LLVAR	an..40
		104-73	Line item discount indicator	Y = yes N = no space = unknown	as 1
		104-73	Line item discount rate		ans 5
		104-73	Line item product code	LLVAR	an..15
		104-73	Line item product quantity	LLVAR	n..12
		104-73	Line item quantity minor unit		n 1
		104-73	Line item tax rate		n 5
		104-73	Line item tax type		ans 4
		104-73	Line item unit of measure	LLVAR	a..12
		104-73	Line item unit price excluding tax	LLVAR	n..12
		104-73	Line item value debit/credit indicator	D = debit C = credit space = unknown	as 1
		104-73	Line item value excluding tax		n 12
		104-73	Line item value including tax		n 12
		104-74	Airline amount total fare		n 12
		104-74	Airline amount total fees		n 12
		104-74	Airline amount total taxes		n 12
		104-74	Airline carrier name	LLVAR	an..19
		104-74	Airline customer reference	LLVAR	ans..20
		104-74	Airline date ticket issue	CCYYMMDD	n 8
		104-74	Airline invoice number		an 6
		104-74	Airline original currency code		n 3
		104-74	Airline original invoice amount		n 12
		104-74	Airline passenger name	LLVAR	ans..29
		104-74	Airline plan number		an 2
		104-74	Airline ticket agency name	LLVAR	an..25
		104-74	Airline ticket issue address	LLVAR	ans..16
		104-74	Airline ticket number	LLVAR	an..15

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
		104-74	Airline travel agency code	LVAR	an 8
		104-75	Trip leg amount departure tax		n 12
		104-75	Trip leg amount fare		n 12
		104-75	Trip leg amount fees		n 12
		104-75	Trip leg amount taxes		n 12
		104-75	Trip leg arrival time		n 4
		104-75	Trip leg arrival time segment code	A = a.m. P = p.m. space = unknown	as 1
		104-75	Trip leg carrier code		an 2
		104-75	Trip leg class of travel		an 2
		104-75	Trip leg conjunction ticket number	LLVAR	an..15
		104-75	Trip leg coupon number		ans 1
		104-75	Trip leg dataset sequence number		b 2
		104-75	Trip leg date of travel	CCYYMMDD	n 8
		104-75	Trip leg departure airport		an 5
		104-75	Trip leg departure time		n 4
		104-75	Trip leg departure time segment code	A = a.m. P = p.m. space = unknown	as 1
		104-75	Trip leg destination code		an 5
		104-75	Trip leg endorsements/restrictions	LLVAR	ans..20
		104-75	Trip leg exchange ticket number	LLVAR	an..15
		104-75	Trip leg fare basis code	LLVAR	an..15
		104-75	Trip leg flight number		ans 5
		104-75	Trip leg number		n 2
		104-75	Trip leg stop over code		an 1
		104-76	Auto amount adjusted		n 12
		104-76	Auto amount adjusted indicator code		as 1
		104-76	Auto amount vehicle insurance		n 12
		104-76	Auto customer service toll-free phone number		ans 16
		104-76	Auto distance unit of measure	K = kilometres M = miles	a 1
		104-76	Auto maximum free miles/kilometres		n 4
		104-76	Auto odometer reading		n 8
		104-76	Auto program code		ans 2
		104-76	Auto rental address	LLVAR	ans..26
		104-76	Auto rental agreement reference	LLVAR	ans..25
		104-76	Auto rental city	LLVAR	ans..18
		104-76	Auto rental class identifier		ans 4
		104-76	Auto rental country		ans 3
		104-76	Auto rental date	CCYYMMDD	n 8
		104-76	Auto rental distance		n 5
		104-76	Auto rental location identifier		ans 10
		104-76	Auto rental rate		n 12
		104-76	Auto rental rate time period	D = daily W = weekly M = monthly space = unknown	as 1

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
		104-76	Auto rental state/province		ans 3
		104-76	Auto rental time	HHMM	n 4
		104-76	Auto renter name	LLVAR	ans..29
		104-76	Auto return address	LLVAR	ans..26
		104-76	Auto return city	LLVAR	ans..18
		104-76	Auto return country		ans 3
		104-76	Auto return date	CCYYMMDD	n 8
		104-76	Auto return location identifier		ans 10
		104-76	Auto return state/province		ans 3
		104-76	Auto return time	HHMM	n 4
		104-76	Auto vehicle insurance indicator	Y = yes N = no space = unknown	as 1
		104-76	Auto vehicle registration number		an 17
		104-77	Lodging amount bar/mini-bar		n 12
		104-77	Lodging amount billing adjustment		n 12
		104-77	Lodging amount gift shop		n 12
		104-77	Lodging amount laundry/dry cleaning		n 12
		104-77	Lodging amount other services		n 12
		104-77	Lodging amount other services indicator		ans 3
		104-77	Lodging amount phone charges		n 12
		104-77	Lodging amount restaurant/room service		n 12
		104-77	Lodging amount room rate		n 12
		104-77	Lodging amount room tax		n 12
		104-77	Lodging customer service toll-free phone number		ans 16
		104-77	Lodging date arrival	CCYYMMDD	n 8
		104-77	Lodging date departure	CCYYMMDD	n 8
		104-77	Lodging facility phone number		ans 16
		104-77	Lodging folio number		ans 10
		104-77	Lodging program code		ans 2
		104-78	Fleet amount bottom line discount		n 12
		104-78	Fleet amount total tax		n 12
		104-78	Fleet driver number/other identification number	LLVAR	n..17
		104-78	Fleet line item value excluding tax		n 12
		104-78	Fleet line item value including tax		n 12
		104-78	Fleet motor fuel oil company brand name		n 4
		104-78	Fleet motor fuel prompt code		n 1
		104-78	Fleet motor fuel service type code		ans 1
		104-78	Fleet odometer reading		n 8
		104-78	Fleet product code	LLVAR	an..15
		104-78	Fleet product quantity	LLVAR	n..12
		104-78	Fleet quantity minor unit		n 1
		104-78	Fleet unit of measure	LLVAR	ans..12
		104-78	Fleet unit price excluding tax		n 12
		104-78	Fleet unit price including tax		n 12
		104-78	Fleet vehicle registration number		an 17

Table B.1 (*continued*)

Bit	Cons	Comp	Name	Format	Representation
105-108			Reserved for ISO use	LLLLVAR	ansb..9999 [a]
109	X		Reconciliation fee amounts credit	LLLVAR	ans..144
	109-1		Fee type code		n 2
	109-2		Amount fee total		n 12
	109-3		Number fee total		n 10
110	X		Reconciliation fee amounts debit	LLLVAR	ans..144
	110-1		Fee type code		n 2
	110-2		Amount fee total		n 12
	110-3		Number fee total		n 10
111-115			Reserved for private use	LLLLVAR	ansb..9999 [a]
116-122			Reserved for national use	LLLLVAR	ansb..9999 [a]
123-127			Reserved for private use	LLLLVAR	ansb..9999 [a]
128 or 64			MAC field		b 4

[a] Attribute for each bit.

Annex C
(informative)

Data transparency

C.1 Description

Messages using ISO 8583 formats ensure that certain fields contain arbitrary binary data, often called transparent data. Such data may contain eight bit bytes that do not represent printable characters or may represent illegal codes in some communication schemes. Hardware devices connected using synchronous communication protocols or protocols designed to front-end for them should have no problem transmitting transparent data.

However, there are many low-end devices that communicate using older dial protocols. These protocols may use character-by-character parity checking, thus limiting data bytes to seven data bits. They may also restrict allowed data to printable characters and specific control codes. Even some older synchronous protocols, like BSC, place limits on the presence and use of specific control codes.

C.2 Common limitations

C.2.1 Protocols that transmit data using seven data bits and odd parity

This is a technique left over from the era of the mechanical teletype. Although modern modems support the technique as a format, the receiving end may not check the received characters for parity. If a parity error is detected, there is often no message level recovery initiated to retransmit the data in error. Thus, there is little benefit left to the technique.

Most service providers of transaction processing services can set up low speed (2 400 bps or lower) modems to operate with eight data bits and no parity as readily as with seven data bits and odd parity. Service providers are generally insensitive to data content, so the presence of undefined or control codes in the message stream will typically have no affect on the transmission of data. Most support Microcom Network Protocols (MNP), which provide data error detection and correction (MNP 4) and data compression (MNP 5).

When the eighth data bit is present, there are two possible values for all character codes. When character data is represented, the parity bit should default to 0 (equivalent to space parity). It is recommended that data be sent in the format eight data bits, no parity. If MNP 4 and higher error detection and correction are supported by the communicating modems, it is recommended it be enabled.

C.2.2 Session level protocol

The common protocols for a dial device connecting to a host transaction processing system use a terse command set of single byte control codes to establish and control the session. Following are descriptions of some of the most common codes. ASCII representations of control codes are used.

— SYN: Sync character. Two to five SYN characters are sent before and after each message to allow the receiver to get its timing lined up and to prevent loss of the first or last character. Most modern modems do not need this, but it doesn't hurt, and it is useful if you get a noisy analogue line.

— ENQ: initial poll, host to terminal. "Do you have a message for me?" Also used terminal-to-host to request retransmission of a response message following time-out. Many service providers "spoof" the initial host ENQ when a terminal first dials in. In this way, the initial message request is being received and buffered at the entry point into a large packet-switching network while the host is being alerted to the connection.

When the host sets up the session to the service provider's entry point and sends its ENQ command, the buffered message is sent to the host at high speed.

— ACK: acknowledge, message received correct. Used in both directions. Not used in Visa 1. Some protocols use ACK 0 and ACK 1 alternately.

— NACK: negative acknowledge, message received with errors. Used in both directions. Not used in Visa 1.

— STX: start of text, start of message.

— ETX: end of text, end of message. Used in both directions.

— ETB: end of block, more to follow. Used in some batch oriented protocols.

— LRC: longitudinal redundancy check. A checksum is calculated on all data between the STX and ETX characters (including the ETX character). The result is an eight-bit character, which may contain any value from 0 to 255, including values, which violate parity. If a message fails the LRC check, the receiver may respond with a NACK (Visa 2) or may ignore the message (Visa 1).

— EOT: end of transmission, disconnect. Sometimes used as a general error reset. Usage varies with different protocols.

It is recommended that low-end terminals continue to use terse command and control codes. Specific session control protocol will be addressed separately.

C.2.3 Protocols that limit data to printable characters and specific control codes

C.2.3.1 Introduction

For example, if a Visa data stream included an ETX character, the message would immediately terminate and the following character would be interpreted as the LRC checksum. The two basic approaches to circumventing this problem have been to use an encoding scheme that will allow data to be represented at some cost in overhead, or to modify the protocol to accept transparent data.

C.2.3.2 Character encoding schemes

In the first category are several techniques. In BSC communications, the DLE character signals the processor that transparent data are to be processed. DLE STX begins transparent text and DLE ETX ends transparent text. The only character not thus supported is the DLE character itself. DLE is represented by the DLE DLE pair.

Another common technique is to use character representation of hexadecimal data. This effectively doubles the size of the data represented, but data is easily interpreted and may be of arbitrary length. Other encoding schemes have been suggested, such as six for eight or seven for eight. Such representations are more space efficient, but are less intuitive to work with on processing. They also require fixed length data blocks in order to come out with completely filled data bytes.

C.2.3.3 Transparent capable protocols

In the second category may be included conversion of devices to use synchronous communications, and a message level protocol variant. Internet protocols use a variety of HDLC (the TCP portion of TCP/IP) to transmit data on a bit-wise basis rather than a byte-wise basis. The data is broken into packets, each of which is individually checked for integrity at low layers of the protocol. At the message level, there is no overhead associated with data integrity checking.

A variant of message level protocol called Length Declaration Format (LDF) was developed to address issues with interfacing dial terminals into X.25 PADs and some of the associated timing problems. The technique is

simple, robust and of general use. Each message is preceded by a four byte header containing a control character, a byte count for the following message, and a flag indicating the type of checksum processing.

a) Without error checking, - <SOH> <byte count> <blank> <STX> text… <ETX>

b) With 8 bit LRC checking, - <SOH> <byte count> 'L' <STX> text… <ETX> <LRC>

c) With CRC 16 checking, - <SOH> <byte count> 'C' <STX> text… <ETX> <CRC 16>

The message is assumed to be the length declared in the 16-bit byte count. (Maximum message length is therefore 65,535 bytes). Checking the message consists of determining that it matches the byte count in length and that the ETX character is the last character of the message. Note that an ETX character within the text does not end the text.

Messages may be formatted with or without checksum processing, depending on whether error-correcting modems are used. If no checksum processing is done, the checksum processing flag is blank. If eight bit Longitudinal Redundancy Check (LRC) processing is used, the checksum processing flag in the header is an "L", and a one byte LRC follows the ETX character. The LRC is calculated on all data following the STX for the declared length and is compared to the value following the ETX character. If they match, the message is ACK'd, if not, the message is NACK'd.

If Cyclical Redundancy Check (CRC) 16 processing is used, the checksum processing flag in the header is a "C", and a two byte CRC 16 follows the ETX character. The CRC 16 is calculated on all data following the STX for the declared length, and compared to the value following the ETX character. If they match, the message is ACK'd, if not, the message is NACK'd.

C.2.4 Recommendations

To maximize the chance of error free transmissions, the following recommendations should be followed.

a) Use synchronous communications protocols, where possible, thereby removing data integrity overhead from message level processing.

b) If dial asynchronous communication is used, the message protocol should be based on LDF formats. The message length should have no dependency on message data content.

c) Using a character-based representation of binary data is not a desirable option because it makes message formats ambiguous. However, if neither of the above recommendations is practical, it can be used, but messages from dial terminals using such an implementation have to be translated, both inbound and outbound, to remove device dependencies before the message can be processed in a host receiving message from multiple terminal types.

C.3 Transaction versus batch protocols

Many common dial applications use different communication protocols for different functions. For example, if a POS needs authorization for a sale, the POS initiates the call and the conversation is run on a strict request/response basis. At end of day, the host may initiate the call, and the conversation is run using a batch-oriented protocol with no acknowledgements of individual blocks unless they are to be retransmitted.

Batch oriented protocols which do little data acknowledgement are left over from the era when communications lines were much slower, and turning the line around to send a response might take even longer than sending the message. With modern communication equipment, modems normally communicate in full duplex mode, so there is no line turn-around time. Timesaving from re-transmitting only individual blocks in error versus full transmission should more than compensate for the overhead of handshaking each packet. [HDLC uses a technique of acknowledging the last correctly received packet number after receiving a group of packets. The sender retransmits all packets from the error point (if any) forward.]

There is no particular reason why data messages and packets have to match one for one, and the convention of setting up data collection applications to process 80 byte card images is quite archaic. Blocking multiple messages within a packet, and use of common data compression techniques in transmission should allow efficient batch oriented transmissions while maintaining consistent data integrity. Regardless of which partner initiates the call or what type of data is sent, there should be a positive handshake for each data packet or group of data packets sent.

Annex D
(informative)

Examples of batch transfer

D.1 Batch transfer management

D.1.1 General

The following examples are provided to give practical suggestions as to how to implement batch transfer. This part of ISO 8583 provides considerable flexibility to enable financial institutions to set up their systems to meet differing requirements and will therefore be the subject of bilateral agreement as to the details. However, in the interests of interoperability, it is recommended that, wherever possible, the examples given in this appendix be followed.

D.1.2 Example of batch transfer between an acquirer and a card issuer

The example gives the specific messages sent and the actual contents of the key message data elements, although any other data elements may also be sent.

The following parameters are assumed:

a) batch transfer initiated by the acquirer;

b) acquirer initiated batch consists of 6 financial presentment notification messages with a frequency of acknowledgement every 4 messages;

c) card issuer initiated batch consists of 4 chargeback messages with no acknowledgement;

d) an optional reconciliation transaction is sent.

Figure D.1 shows the messages flows, and Tables D.1 to D.7 give the relevant data element contents.

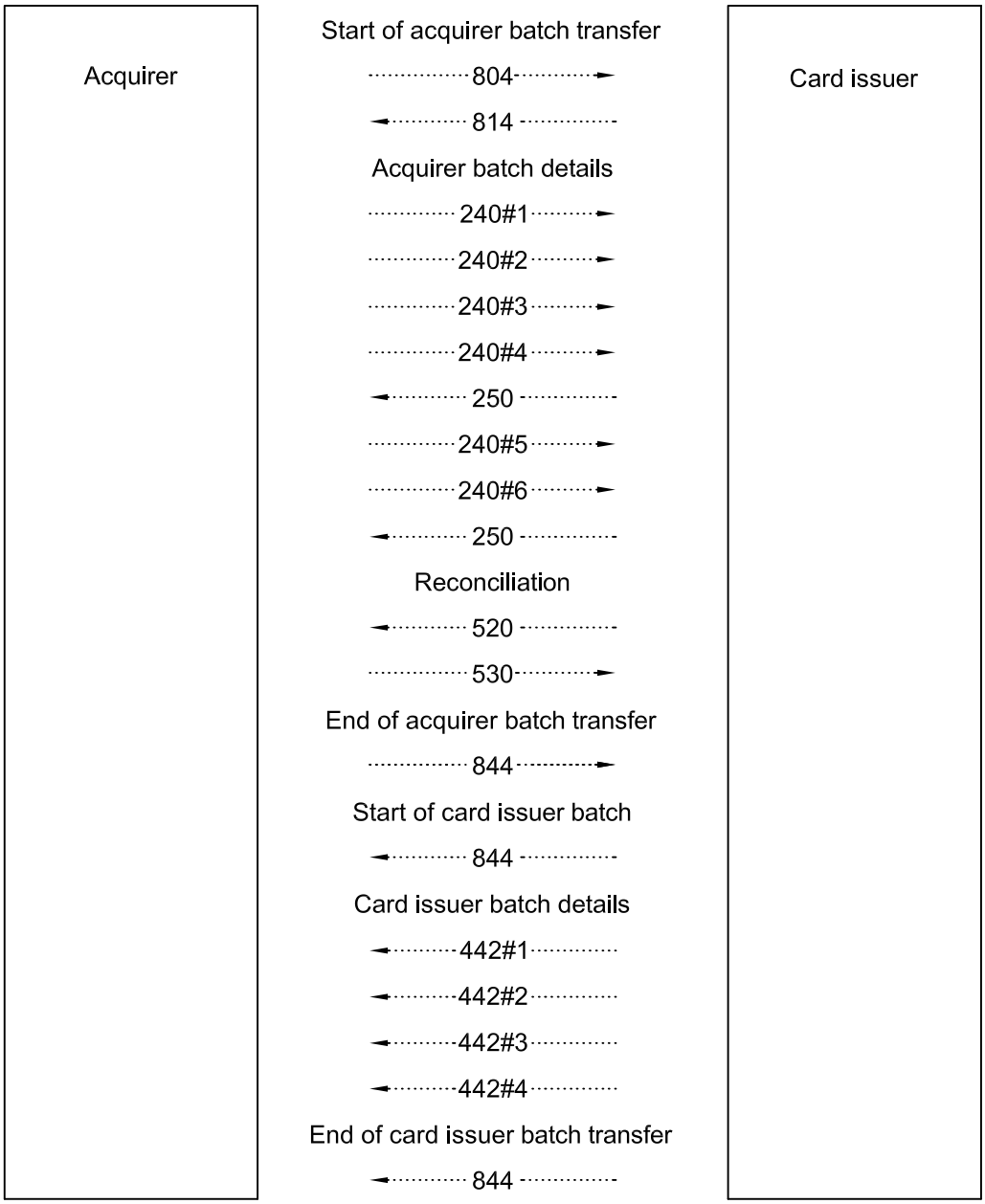


Figure D.1 — Example batch transfer message flows

Table D.1 — Start of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
804	**Acquirer to card issuer**			
	24	Function code	841	Start batch transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000006 ..test batch 1	 Number of messages in the batch Batch name
814	**Card issuer to acquirer**			
	24	Function code	841	Start batch transfer
	39	Action code	8000	Accepted
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000006 ..test batch 1	 Number of messages in the batch Batch name

Table D.2 — Acquirer batch details

MTI	Bit	Data element name	Value	Meaning
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000001	No acknowledgement required 1st message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000002	No acknowledgement required 2nd message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000003	No acknowledgement required 3rd message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	1 00000004	Acknowledgement required 4th message
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	3 00000004	Positive acknowledgement All messages up to the 4th one correctly received
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000005	No acknowledgement required 5th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	2 00000006	Acknowledgement required, end of transfer 6th message
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	3 00000006	Positive acknowledgement All messages up to the 6th one correctly received

Table D.3 — Reconciliation

MTI	Bit	Data element name	Value	Meaning
520	**Acquirer to card issuer**			
530	**Card issuer to acquirer**			
	39	Action code	8000	Accepted

Table D.4 — End of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	Acquirer to card issuer			
	24	Function code	842	End of batch transfer
	25	Message reason code	8002	End batch
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 0000000 ..test batch 1	 Number of messages in the batch Batch name

Table D.5 — Start of card issuer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	Card issuer to acquirer			
	24	Function code	841	Start batch transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000004 ..test batch 2	 Number of messages in the batch Batch name

Table D.6 — Card issuer batch details

MTI	Bit	Data element name	Value	Meaning
442	Card issuer to acquirer			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000001	 No acknowledgement required 1st message
442	Card issuer to acquirer			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000002	 No acknowledgement required 2nd message
442	Card issuer to acquirer			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000003	 No acknowledgement required 3rd message
442	Card issuer to acquirer			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000004	 No acknowledgement required 4th message

Table D.7 — End of card issuer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	Card issuer to acquirer			
	24	Function code	842	End of batch transfer
	25	Message reason code	8002	End batch
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 0000000 ..test batch 2	 Number of messages in the batch Batch name

D.1.3 Example of management of negative acknowledgement

This example shows how an acquirer initiated batch transfer with a negative acknowledgement for a financial presentment notification message is managed.

The following parameters are assumed:

a) batch transfer is initiated by the acquirer;

b) batch transfer consists of 7 financial presentment notifications with a frequency of acknowledgement every 3 messages with a negative acknowledgement and a repeat requested on the 5th financial presentment notification message.

Figure D.2 shows the message flows and Tables D.8 to D.11 give the relevant data element contents.

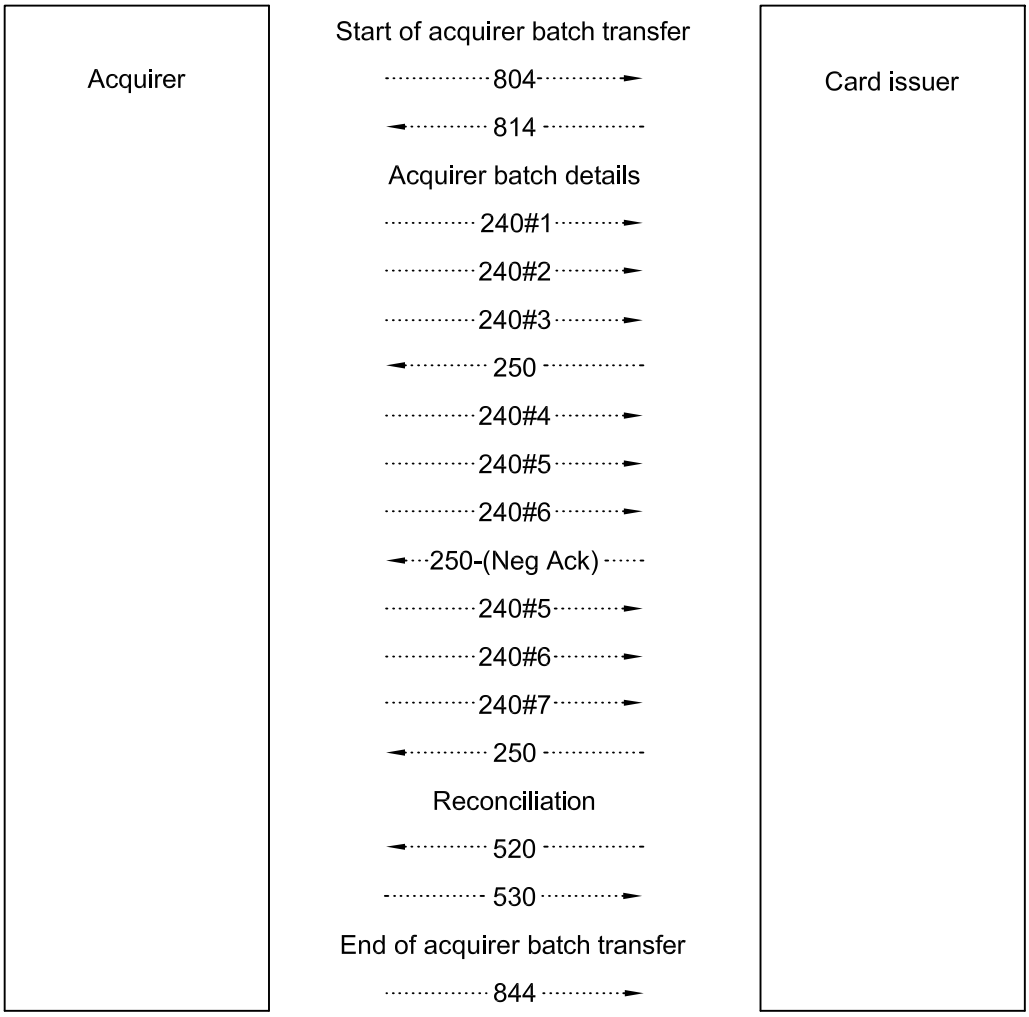


Figure D.2 — Example of negative acknowledgement message flows

Table D.8 — Start of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
804	**Acquirer to card issuer**			
	24	Function code	841	Start of batch/file transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000007 ..test batch 3	 Number of messages in the batch Batch name
814	**Card issuer to acquirer**			
	24	Function code	841	Start batch transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000007 ..test batch 3	 Number of messages in the batch Batch name

Table D.9 — Acquirer batch details

MTI	Bit	Data element name	Value	Meaning
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000001	 No acknowledgement required 1st message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000002	 No acknowledgement required 2nd message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 1 00000003	 Acknowledgement required 3rd message
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 3 00000003	 Positive acknowledgement All messages up to the 3rd one correctly received
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000004	 No acknowledgement required 4th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000005	 No Acknowledgement required 5th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 1 00000006	 Acknowledgement required 6th message

Table D.9 (*continued*)

MTI	Bit	Data element name	Value	Meaning
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	7 00000005	Negative acknowledgement, repeat requested All messages up to the 5th one correctly received
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000005	No acknowledgement required 5th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000006	No acknowledgement required 6th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	2 00000007	Acknowledgement required, end of transfer 7th message
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	3 00000007	Positive acknowledgement All messages up to the 7th one correctly received

Table D.10 — Reconciliation

MTI	Bit	Data element name	Value	Meaning
520	**Acquirer to card issuer**			
530	**Card issuer to acquirer**			
	39	Action code	8000	Accepted

Table D.11 — End of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	**Acquirer to card issuer**			
	24	Function code	842	End batch transfer
	25	Message reason code	8002	End batch
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	00000000 ..test batch 3	Number of messages in the batch Batch name

D.1.4 Example of the management of interruptions

This example shows how a restart is managed if an interruption occurs during a batch transfer.

The following parameters are assumed:

a) batch transfer is initiated by the acquirer;

b) batch consists of 7 financial presentment notifications with a frequency of acknowledgement every 4 messages.

Figure D.3 shows the messages flows and Tables D.12 to D.17 give the relevant data element contents.

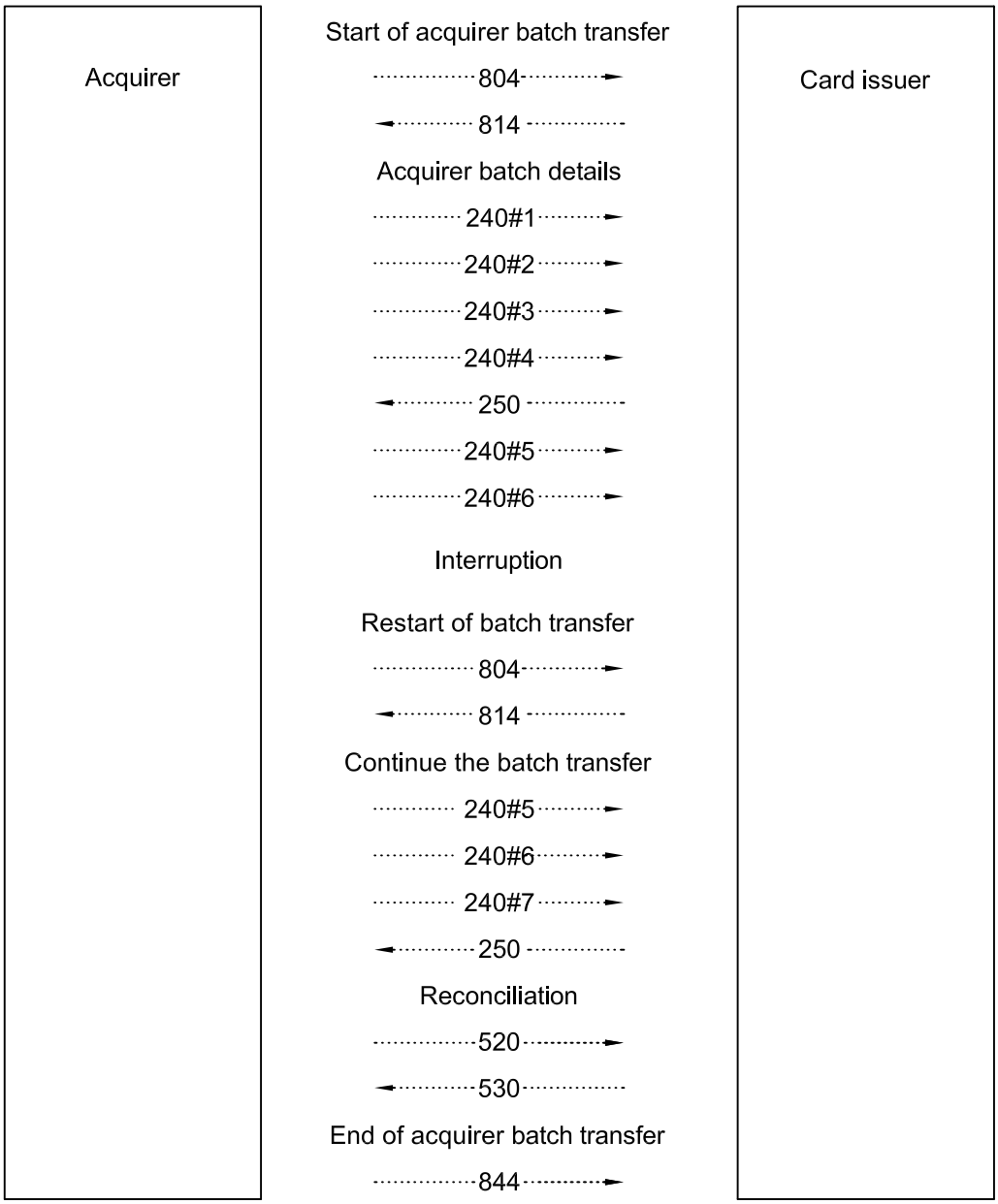


Figure D.3 — Example of the management of interruptions message flows

Table D.12 — Start of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
804	**Acquirer to card issuer**			
	24	Function code	841	Start batch transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000007 ..test batch 4	 Number of messages in the batch Batch name
814	**Card issuer to acquirer**			
	24	Function code	841	Start batch transfer
	39	Action code	8000	Accepted
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000007 test batch 4	 Number of messages in the batch Batch name

Table D.13 — Acquirer batch details

MTI	Bit	Data element name	Value	Meaning
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 0 00000001	 No acknowledgement required 1st message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 0 00000002	 No acknowledgement required 2nd message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 0 00000003	 Acknowledgement required 3rd message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 1 00000004	 Acknowledgement required 4th message
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 3 00000004	 Positive acknowledgement All messages up to the 4th one correctly received
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 0 00000005	 No acknowledgement required 5th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence count	 0 00000006	 No acknowledgement required 6th message
Connection interrupted				

Table D.14 — Restart of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
	Connection interrupted			
804	**Acquirer to card issuer**			
	24	Function code	841	Start batch transfer
	25	Message reason code	8001	Start batch, recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000007 test batch 4	 Number of financial presentment notifications File name
814	**Card issuer to acquirer**			
	24	Function code	841	Start batch transfer
	39	Action code	8000	Accepted
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000007 test batch 4	 Number of financial presentment notifications File name

Table D.15 — Continue the batch transfer

MTI	Bit	Data element name	Value	Meaning
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000005	 No acknowledgement required 5th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000006	 No acknowledgement required 6th message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 2 00000007	 Acknowledgement required, end of transfer 7th message
250	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 3 00000007	 Positive acknowledgement All messages up to the 7th one correctly received

Table D.16 — Reconciliation

MTI	Bit	Data element name	Value	Meaning
520	**Acquirer to card issuer**			
530	**Card issuer to acquirer**			
	39	Action code	8000	Accepted

Table D.17 — End of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	Acquirer to card issuer			
	24	Function code	842	End batch transfer
	25	Message reason code	8002	End batch
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	0000000 test batch 4	Number of messages in the batch Batch name

D.1.5 Example of a simple batch transfer

This example shows a simple batch transfer with no other activity. The following parameters are assumed:

a) batch transfer is initiated by acquirer;

b) batch consists of 3 financial presentment notifications and 1 fee collection message;

c) there are no acknowledgements.

Figure D.4 shows the messages flows and Tables D.18 to D.20 give the relevant data element contents.

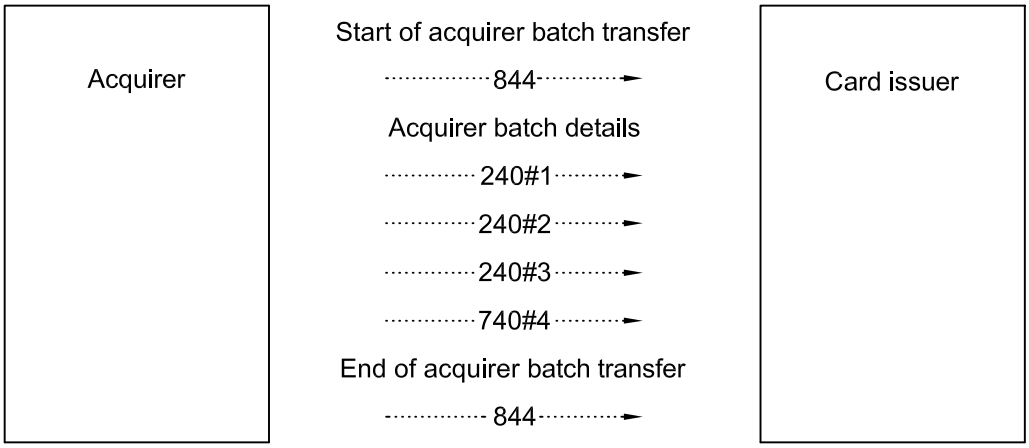


Figure D.4 — Example simple batch transfer message flows

Table D.18 — Start of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	Acquirer to card issuer			
	24	Function code	841	Start batch transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	00000004 ..test batch 5	Number of messages in the batch Batch name

Table D.19 — Acquirer batch details

MTI	Bit	Data element name	Value	Meaning
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000001	 No acknowledgement required 1st message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000002	 No acknowledgement required 2nd message
240	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000003	 No acknowledgement required 3rd message
740	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	 0 00000004	 No acknowledgement required 4th message

Table D.20 — End of acquirer batch transfer

MTI	Bit	Data element name	Value	Meaning
844	**Acquirer to card issuer**			
	24	Function code	842	End batch transfer
	25	Message reason code	8002	End batch
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 0000000 ..test batch 5	 Number of messages in the batch Batch name

Annex E
(informative)

Examples of file transfer

E.1 File transfer management

E.1.1 General

The following examples are provided to give practical suggestions as to how to implement file transfer. This part of ISO 8583 provides considerable flexibility to enable financial institutions to set up their systems to meet differing requirements and will therefore be the subject of bilateral agreement as to the details. However, in the interests of interoperability, it is recommended that, wherever possible, the examples given in this appendix be followed.

E.1.2 Example of a file transfer

This example shows how a file transfer is managed. The example provides the specific messages sent and the actual contents of the key message data elements, although any other data elements may also be sent.

The following parameters are assumed:

a) file transfer is initiated by the card issuer;

b) transfer consists of 2 files.

Table E.1 gives the details of how the *Data record* data element is configured for each file. Figure E.1 shows the messages flows and Tables E.2 to E.7 give the relevant data element contents.

Table E.1 — File transfer details

Transfer details	File 1	File 2
Length of file (bytes)	5120	1400
Number of elementary data records	20	14
Frequency of acknowledgement	1	After final message

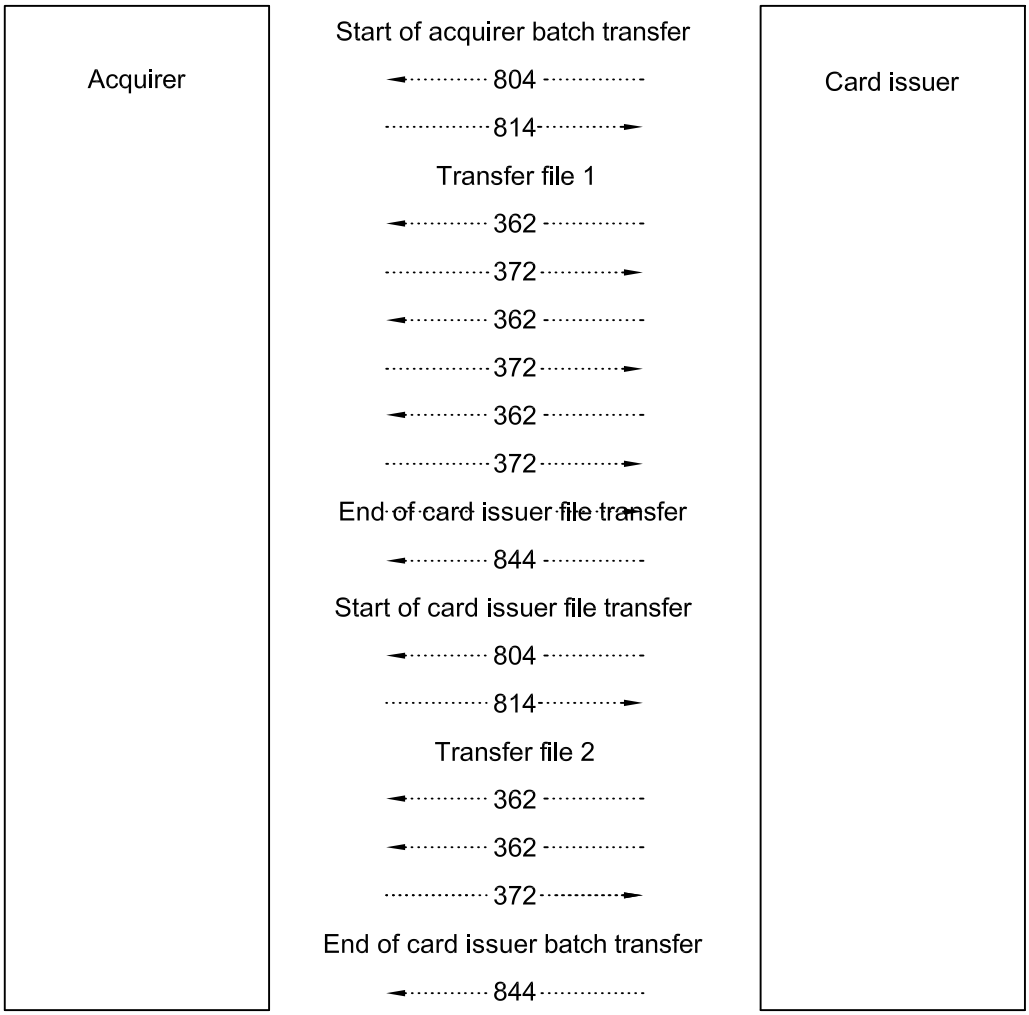


Figure E.1 — Example file transfer

Table E.2 — Start of file transfer

MTI	Bit	Data element name	Value	Meaning
804	**Card issuer to acquirer**			
	24	Function code	841	Start file transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000003 ..test file 1	 Number of messages in the files File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 005120 000020 000020	 File size in bytes Number of elementary records in file Remaining number of elementary records
814	**Acquirer to card issuer**			
	24	Function code	841	Start file transfer
	39	Action code	8000	Accepted
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000003 ..test file 1	 Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 005120 000020 000020	 File size in bytes Number of elementary records in file Remaining number of elementary records

Table E.3 — Transfer of file 1

MTI	Bit	Data element name	Value	Meaning
362	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	1 00000001	Acknowledgement required 1st message
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	00000003 ..test file 1	Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	005120 000020 000014	File size in bytes Number of elementary records in file Remaining number of elementary records
	72	Data record		Contains the first 6 elementary data records
372	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	3 00000001	Positive acknowledgement 1st message
362	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	1 00000002	Acknowledgement required 2nd message
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	00000003 ..test file 1	Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	005120 000020 000008	File size in bytes Number of elementary records in file Remaining number of elementary records
	72	Data record		Contains the 6 subsequent elementary data records
372	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	3 00000002	Positive acknowledgement 2nd message
362	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	1 0000003	Acknowledgement required 3rd message
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	00000003 ..test file 1	Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	005120 000020 000000	File size in bytes Number of elementary records in file Remaining number of elementary records
	72	Data record		Contains the 8 subsequent elementary data records
372	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	3 00000003	Positive acknowledgement 3rd message

Table E.4 — End of card issuer file transfer

MTI	Bit	Data element name	Value	Meaning
844	**Card issuer to acquirer**			
	24	Function code	842	End file transfer
	25	Message reason code	8002	End file
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000003 ..test file 1	 Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 005120 000020 000000	 File size in bytes Number of elementary records in file Remaining number of elementary records

Table E.5 — Start of card issuer file transfer

MTI	Bit	Data element name	Value	Meaning
804	**Card issuer to acquirer**			
	24	Function code	841	Start file transfer
	25	Message reason code	8000	Start transfer, no recovery procedure
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000002 ..test file 2	 Number of messages in the files File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 001400 000014 000014	 File size in bytes Number of elementary records in file Remaining number of elementary records
814	**Acquirer to card issuer**			
	24	Function code	841	Start file transfer
	39	Action code	8000	Accepted
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000002 ..test file 2	 Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 001400 000014 000014	 File size in bytes Number of elementary records in file Remaining number of elementary records

Table E.6 — Transfer file 2

MTI	Bit	Data element name	Value	Meaning
362	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	0 00000001	No acknowledgement required 1st message
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000002 ..test file 2	 Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 001400 000014 000004	 File size in bytes Number of elementary records in file Remaining number of elementary records
	72	Data record		Contains the first 10 elementary data records
362	**Card issuer to acquirer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	2 00000002	Acknowledgement required, end of transfer 2nd message
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000002 ..test file 2	 Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 001400 000014 000000	 File size in bytes Number of elementary records in file Remaining number of elementary records
	72	Data record		Contains the last 4 elementary data records
372	**Acquirer to card issuer**			
	68	Batch/file transfer message control Batch/file transfer acknowledgement code Batch/file transfer message sequence number	4 00000002	Positive acknowledgement, end of transfer 2nd message

Table E.7 — End of card issuer file transfer

MTI	Bit	Data element name	Value	Meaning
844	**Card issuer to acquirer**			
	24	Function code	842	End file transfer
	25	Message reason code	8002	End batch
	69	Batch/file transfer control data Batch/file transfer message count Batch/file transfer file identification	 00000002 ..test file 2	 Number of messages in the file File name
	70	File transfer description data File transfer file size File transfer elementary data record count File transfer remaining data record count	 001400 000014 000000	 File size in bytes Number of elementary records in file Remaining number of elementary records

Annex F
(informative)

Summary of changes made to ISO 8583:1993

F.1 Interoperability

F.1.1 General

ISO 8583:1993 has been replaced in three parts to address several industry enhancements which have occurred since 1993. The document has been re-structured for ease of use and the messages, data elements and values updated. The date related data elements have also been updated for the year 2000.

Many changes were made to the codes, data elements and messages based on the industry's experience with using the prior version. An entirely new International Standard, ISO 18245, *Retail financial services — Merchant category codes*, has been created from the former card acceptor business code to allow use of these codes across the financial industry. Changes to other codes, data elements and messages are listed below.

F.1.2 Code values

Code values were added to:

a) transaction type codes and account type codes within *Processing code*, (bit 3)

b) point of sale data codes (bit 22);

c) function codes (bit 24);

d) message reason codes (bit 25);

e) point of sale data capability (bit 27);

f) action codes (bit 39);

g) amount type codes (bit 54);

h) fee type codes (bits 46, 66, 109 and 110).

F.1.3 Data elements

F.1.3.1 General

This part of ISO 8583 adds the concept of primitive, constructed and composite data elements (see 5.3) to allow flexibility in supporting new business functions. Existing and new data elements were modified to incorporate the use of this concept. All the data elements have been combined into a single table for ease of reference. Data elements are listed in numeric bit order in Annex B and in alphabetic order in Table 3. The new and changed data elements are given below.

F.1.3.2 Data elements added

The following data elements have been added:

a) *Message error indicator* (bit 18);

b) *Transaction life cycle* (bit 21);

c) *Point of service capability* (bit 27);

d) *Electronic commerce* (bit 34);

e) *Verification data* (bit 49);

f) *Extended payment data* (bit 67);

g) *Batch file transfer message control* (bit 68);

h) *Batch file transfer control data* (bit 69);

i) *File transfer description data* (bit 70);

j) *Transaction specific data* (bit 104), added multiple sub-elements for industry specific data, e.g. airline, hotel, car rental.

F.1.3.3 Data elements changed

The following data elements have been changed:

a) *Systems trace audit number* (bit 11), expanded length;

b) *Point of service data code* (bit 22), restructured and created *Point of service capability code* (bit 27);

c) Card acceptor business code (bit 26), renamed *Merchant category code*;

d) *Acquirer reference number* (bit 31), restructured and renamed;

e) *Action code* (bit 39), expanded length;

f) *Card acceptor terminal identification* (bit 41) expanded length;

g) *Card acceptor identification code* (bit 42) expanded length;

h) *Card acceptor name/location* (bit 43) expanded sub elements and restructured into composite field;

i) *Additional response data* (bit 44) restructured;

j) *Integrated circuit card (ICC) system related data* (bit 55), expanded length and restructured to be composite data element;

k) Message authentication code (MAC) field (bit 64 or 128) reduced length from 8 to 4;

l) *Original data elements* (bit 56), made the sub-element, acquiring institution identification code, variable length;

m) *File name* (bit 101) expanded length.

Data elements reserved for ISO, national or private use have been given expanded length attributes.

F.1.3.4 Data elements deleted

The following data elements have been deleted:

a) Merchant type (bit 18);

b) Country code, forwarding institution (bit 21);

c) PAN, extended (bit 34);

d) Country code, receiving institution (bit 68);

e) Country code, settlement institution (bit 69)M;

f) Country code, authorizing agent institution (bit 70);

g) Message number (bit 71);

h) Country code, transaction destination institution (bit 91);

i) Country code, transaction originator institution (bit 92).

Currency code data elements have been combined with the associated amount data elements and have had added a currency minor unit, resulting in new constructed data elements.

Reconciliation amount data elements have been combined with the associated reconciliation count data elements resulting in new constructed data elements.

F.1.4 Messages

All information about a message has been grouped together in this part of ISO 8583, including the message description, rules, identifiers, mandatory/conditional data elements and message flows.

New and updated message types and uses of messages and message condition codes (see Table 3) were added for:

a) Batch transfer (200, 400, 500, 800 message types);

b) Error processing (600 message types);

c) File transfer (300 and 800 message types);

d) Financial accumulation presentment (200 message types);

e) Key exchange (800 message types);

f) Retrievals (600 message types);

g) Verification (100 message types).

Other sections were added to explain message processing, message matching and transaction matching and institution routing.

F.2 New features

F.2.1 Electronic commerce

Electronic commerce data (bit 34) has been added to carry this type of data and values in *Point of sale data code* (bit 22) and *Point of service capability* (bit 27) have been added to identify electronic commerce.

F.2.2 Electronic purse

New processing codes (bit 3) have been added for electronic purse and financial accumulation presentment messages (see 8.5) defined to support this type of business.

F.2.3 Integrated circuit card (ICC)

The usage of bit 55 for security applications has been standardized, which has resulted in the deletion of ISO 13489.

F.2.4 Batch transfer/File transfer

New business functions rules and structure for processing batches and files of transactions have been specified, along with additional data elements, message types and formats. Two informative annexes provide guidance on usage.

F.2.5 Error processing

New rules and structure for handling message errors have been defined, along with additional data elements and message flows.

F.3 Annexes

New informative annexes have been added for:

a) data elements in bit number order (Annex B);

b) data transparency (Annex C);

c) examples of batch transfer management (Annex D);

d) examples of file transfer (Annex E);

e) summary of changes (Annex F).

F.4 Maintenance of ISO 8583 (all parts)

ISO 8583-3 has been updated to ease the ongoing maintenance of all three parts of this International Standard and to address the need to respond rapidly to requests for changes to them. ISO 8583-3 enhances the scope of the RMMG and clarifies its responsibilities.

The RMMG can now respond to requests for new business functions that may require new message classes, data elements, code values, etc. without submitting all three parts of the International Standard for revision.

Bibliography

[1] ATPCO Ticket Exchange Services (TCN): TCN Steering Committee c/o APTCO, Revenue Systems Department, Dulles International Airport, P.O. Box 17415, Washington, D.C. 20041-0415

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