



Implementation Guidelines for ISO 20022 Interbank Messages

SIC and euroSIC

Base Document

Version 1.9, with effect from 15 November 2019

General notes

SIX Interbank Clearing reserves the right to modify this document, as the need arises, at any time without prior notice.

SIX Interbank Clearing reserves all rights for this document including the rights of photomechanical reproduction, storage on electronic media and the translation into foreign languages.

Although great care has been taken in the compilation and preparation of this work to ensure accuracy, errors and omissions cannot be entirely ruled out. SIX Interbank Clearing cannot be held liable for any decision made or action taken in reliance on the information in this document or for any consequential, special or similar damages.

If you detect any errors in this document or have any ideas or suggestions for improvements we would be extremely grateful if you would notify these by e-mail to **operations@six-group.com**.

About this document

Target audience

The "Implementation Guidelines for ISO 20022 Interbank Messages" are addressed to all participants of the Swiss RTGS systems SIC and euroSIC, using the ISO 20022 message standard.

Purpose

The Implementation Guidelines consist of a base document (this document) with general information concerning all message types and various module documents – one each per ISO 20022 message type – with message-specific information, including information on the application-specific handling of individual elements. They specify the messages to be submitted to and delivered from the RTGS systems SIC and euroSIC in the ISO 20022 message standard.

Amendment control

All the amendments carried out on this document are listed in an amendment record table showing the version, the date of the amendment, a brief amendment description and a statement of the sections concerned.

Associated documents

Supplementary information to the Implementation Guidelines can be found in the documents listed in section 2.6 "Reference documents".

Amendment control

All the amendments carried out on this document are listed below, with the version, the date of the amendment, a brief amendment description and a statement of the sections concerned.

Version	Date	Amendment description	Section
1.9	20.03.2019	Adaption of the descriptions of the message specifications in Version 1.8 withdrawn. Implementation Guidelines table again with column "SWIFT MX messages».	2.1
1.8	20.02.2019	Descriptions of the message specifications adapted. Implementation Guidelines table updated and column "SWIFT MX messages» removed.	2.1
		Note on SWIFT InterAct messages described more precise.	2.2
		Message flows for payment cancellation requests adapted.	2.2.3
		New message flows for SEPA investigations added.	2.2.4
		New message flows for SEPA query status added.	2.2.5
		Screenshot of the validation portal replaced.	2.5
		Reference documents updated.	2.6
		Information about duplicates checking updated.	3.1.2
1.7.1	15.06.2018	Publication as "Minor" version: Layout adaptation according to the new Brand Identity Guidelines.	all
1.7	20.03.2018	Special case for duplicates checking of "SEPA query status" (pacs.028) added.	3.1.1
1.6	20.02.2018	Note on validity updated.	Foreword
		Details about messages in the SIC or SWIFT FIN message standard removed from the documentation structure diagram.	1
		Version name ISO 20022 standard removed, abbreviation HVPS+ inserted for SWIFT "High Value Payments" working group and new Implementation Guideline "SEPA query status" (pacs.028) included in Table 1.	2.1
		Note about SWIFT InterAct messages added.	2.2
		Message "camt.008" removed from Figure 2 (is included in Figure 7).	2.2.1
		Diagram and reading example using "SEPA query status" (pacs.028) expanded.	2.2.3
		"Payments Maintenance 2009" [8] renamed "ISO Definitions" and title changed.	2.6
		Pre-value-date payments no longer permitted.	3.1.1
		Description of exception for the <CreDtTm> element added.	3.2.2
		New sections about using special characters and "CDATA" added.	3.3
		Chapter on "Truncation during conversion" removed and new chapter on "Using the BIC in payment messages" inserted.	3.4

Version	Date	Amendment description	Section
		New line "Viseca settlement" inserted and column "SIC MT" deleted in table 7.	3.5
1.5	21.03.2016	Title page and colour scheme for tables and illustrations amended to comply with the new Brand Identity Guidelines.	all
		Note on validity added.	Foreword
		Three new Implementation Guidelines for ISO 20022 Interbank Messages: "Settlement Order Modification", "Liquidity Reservation" and "Settlement Account Query".	2.1
		Renaming the Implementation Guideline "Query" to "Transaction Query".	2.1
		Four new message types in the ISO 20022 message standard: Get Account (camt.003), Return Account (camt.004), Modify Transaction (camt.007) and Modify Reservation (camt.048).	2.1, 2.2
		More detail added on representation conventions for amount fields.	3.2.1
		New section on "Conceptual changes associated with the switch to ISO 20022".	3.5
1.4	02.07.2015	Section "Representation of XML messages" complemented with explanations concerning the representation of choices.	2.3
1.3	16.04.2015	Document name changed, Logo replaced, Wording adapted to the terminology of the RTGS platform.	all
		Table 1 completed with Implementation Guideline for queries.	2.1
		Section "Queries" added.	2.2.4
		Section "Duplicates checking for cash management messages (camt)" completed with special case queries.	3.1.2
1.2	30.06.2014	Section "Duplicates checking" clarified by distinguishing between pacs and camt messages	3.1
1.1	31.03.2014	Section "Message transport for SEPA payment cancellation request" added	2.2.3
1.0	01.01.2014	First edition	all

Table of contents

1	Overview of documentation structure.....	7
2	General information.....	8
2.1	Message specifications	8
2.2	Message flows.....	10
2.2.1	Payments	10
2.2.2	Reconciliation and notification	11
2.2.3	Message transport for payment cancellation request.....	12
2.2.4	Message transport for SEPA investigation	13
2.2.5	Message transport for SEPA query status	14
2.2.6	Queries.....	15
2.2.7	Modifications.....	16
2.3	Representation of XML messages.....	17
2.4	Representation of terms from the ISO standard	18
2.5	Validation portal	19
2.6	Reference documents.....	21
3	Business specifications for interbank messages	22
3.1	Duplicates checking	22
3.1.1	Duplicates checking for payment messages (pacs).....	22
3.1.2	Duplicates checking for cash management messages (camt).....	23
3.2	Representation conventions	24
3.2.1	Representation conventions for amount fields	24
3.2.2	Representation conventions for date fields	24
3.3	Character set.....	25
3.4	Using the BIC in payment messages	26
3.5	Conceptual changes associated with the switch to ISO 20022.....	27
	Appendix A: Symbols for graphical XML representation	29
	Appendix B: Definitions of terms	31
	Appendix C: Table of figures	32
	Appendix D: Table of tables	32

1 Overview of documentation structure

These Implementation Guidelines are modular in structure:

- This base document contains general information applying to all messages.
- The module documents – one for each ISO 20022 message type – contain message-specific information, including information on the application-specific handling of certain elements.
- For each Implementation Guideline, an XML schema (XSD) and generic XML sample messages will be published.

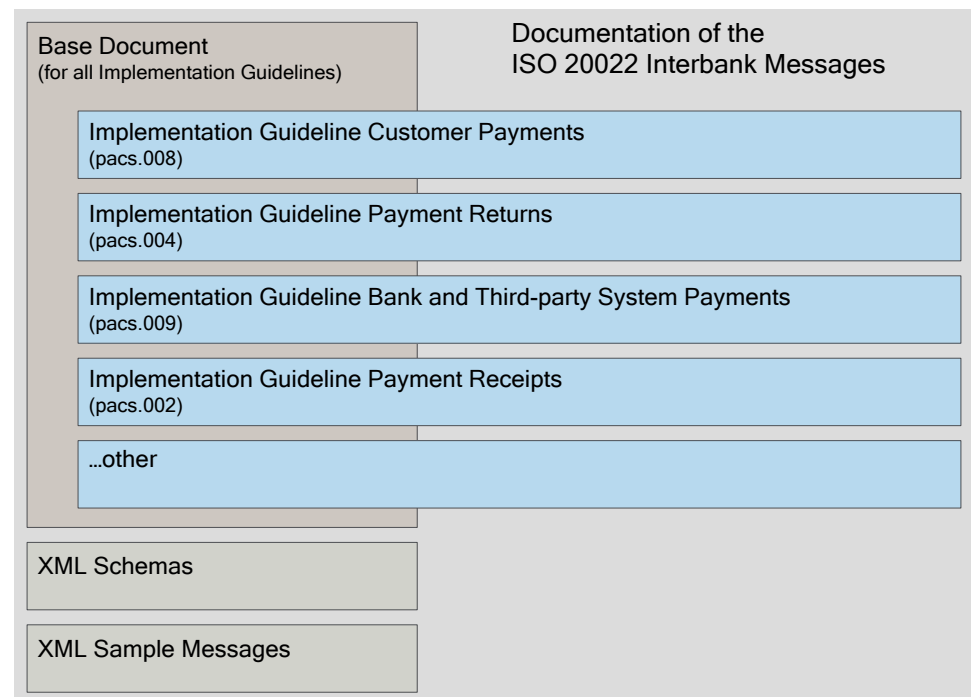


Figure 1: Documentation structure

2 General information

2.1 Message specifications

The message definitions for the RTGS systems are based on the ISO 20022 standard, similar to the EPC recommendations for SEPA. Some of the required messages for the RTGS systems are not yet defined as ISO 20022 messages. As a substitute for such messages the SWIFT MX messages specified in the SWIFT working group "CAMT MX" and published in the "MX Standards Release 2013" can be used (these messages are used for T2S/TARGET2). The EPC definitions for SEPA and those of the working group "High Value Payments" (HVPS+) were, as far as possible, considered.

The message specifications, which are binding on all RTGS system participants – who want to use ISO 20022 message standard – are described in the following Implementation Guidelines:

Implementation Guideline	ISO 20022 message	SWIFT MX message
Customer payments	pacs.008	
Payment returns	pacs.004	
Bank and third-party system payments	pacs.009	
Payment receipts	pacs.002	
Recapitulations	camt.052	
Settlement confirmation	camt.054	
Return request	camt.056	
Return request rejection	camt.029.001.03	
SEPA query status*	pacs.028	
SEPA missing incoming payment query*	camt.027	
SEPA value date adjustment request*	camt.087	
SEPA investigation resolution*	camt.029.001.08	
Settlement order modification		camt.007
Cancellation		camt.008
Liquidity reservation		camt.048
Sight deposit account transfers (system managers)		camt.050
Clearing day information		camt.019
Cash management receipts		camt.025
Settlement account query		camt.003 and camt.004
Transaction query		camt.005 and camt.006

Table 1: Implementation Guidelines

- * These Implementation Guidelines describe use cases that are currently only permitted for SEPA transactions in euroSIC.

2.2 Message flows

Notes about SWIFT InterAct messages

- SWIFT InterAct messages sent via the SWIFT gateway are acknowledged by the RTGS systems only in case of a negative validation (NOK message RJCT) or in case of a positive validation with changes (OK message ACWC). If the validation is positive without changes (OK message ACCP), the RTGS systems do not send an acknowledgement.
- SWIFT InterAct messages received via the SWIFT gateway must not be acknowledged. The RTGS systems do not expect any acknowledgements from the participant.

2.2.1 Payments

The following diagram shows the message flows for payment messages between participants and the respective RTGS systems.

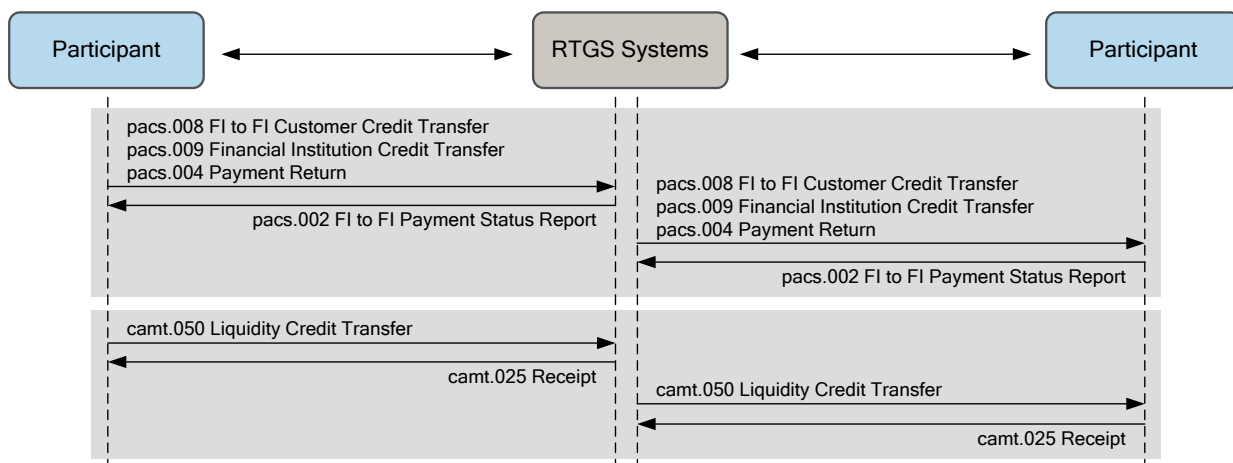


Figure 2: Message flows for payment messages

Example of a message flow:

1. A participant sends a "pacs.008" message to the RTGS system.
2. The RTGS system acknowledges receipt by sending a "pacs.002" to that participant.
3. The RTGS system settles the payment and then sends a "pacs.008" message to the participant for whom the payment is intended.
4. This participant acknowledges receipt by sending a "pacs.002" to the RTGS system.

2.2.2 Reconciliation and notification

The following diagram shows the message flows for reconciliation and notification messages between the respective RTGS systems and participants.

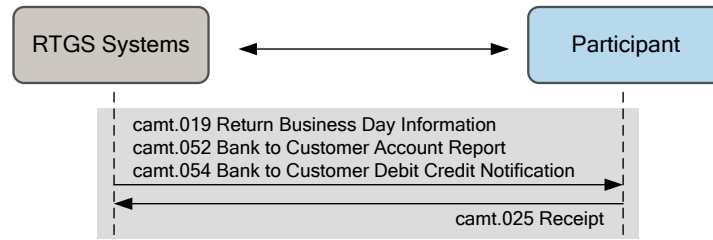


Figure 3: Message flows for reconciliation and notification messages

Example of a message flow:

1. The RTGS system sends a "camt.054" message to a participant.
2. The participant acknowledges receipt by sending a "camt.025" to the RTGS system.

2.2.3 Message transport for payment cancellation request

The following diagram shows the message flows for payment cancellation request and rejection of payment cancellation request. With these messages the system only validates the submitted messages and forwards them to the receiver, but does not really process the messages.

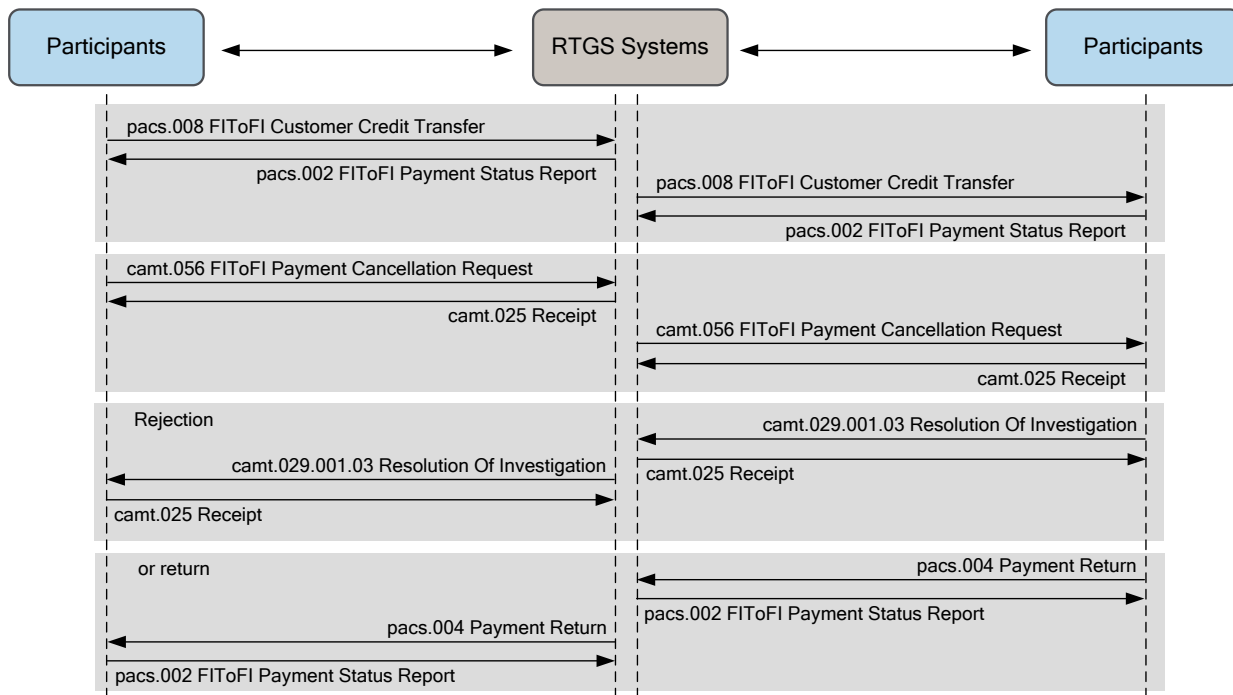


Figure 4: Message flows for payment cancellation requests

Example of a message flow (the payment cancellation request begins with step 3):

1. A participant sends a "pacs.008" message to the RTGS system.
2. The RTGS system settles the payment and then sends a "pacs.008" message to the participant for whom the payment is intended.
3. The debtor agent initiates a payment cancellation request (camt.056).
4. The RTGS system forwards the payment cancellation request (camt.056) to the creditor agent.
5. The creditor agent decides to reject the payment cancellation request and sends a payment cancellation request rejection (camt.029.001.03) to the RTGS system.
6. The RTGS system forwards the payment cancellation request rejection (camt.029.001.03) to the debtor agent.
7. As an alternative to the rejection the creditor agent may opt for a repayment return and sends a payment return (pacs.004) to the RTGS system.
8. The RTGS system settles the payment return and then sends a "pacs.004" message to the participant for whom the payment return is intended.

2.2.4 Message transport for SEPA investigation

The following diagram shows the message flows for SEPA queries (SEPA missing incoming payment query "camt.027" and SEPA value date adjustment request "camt.087") as well as SEPA investigation resolution "camt.029.001.08". With these messages the system only validates the submitted messages and forwards them to the receiver, but does not really process the messages.

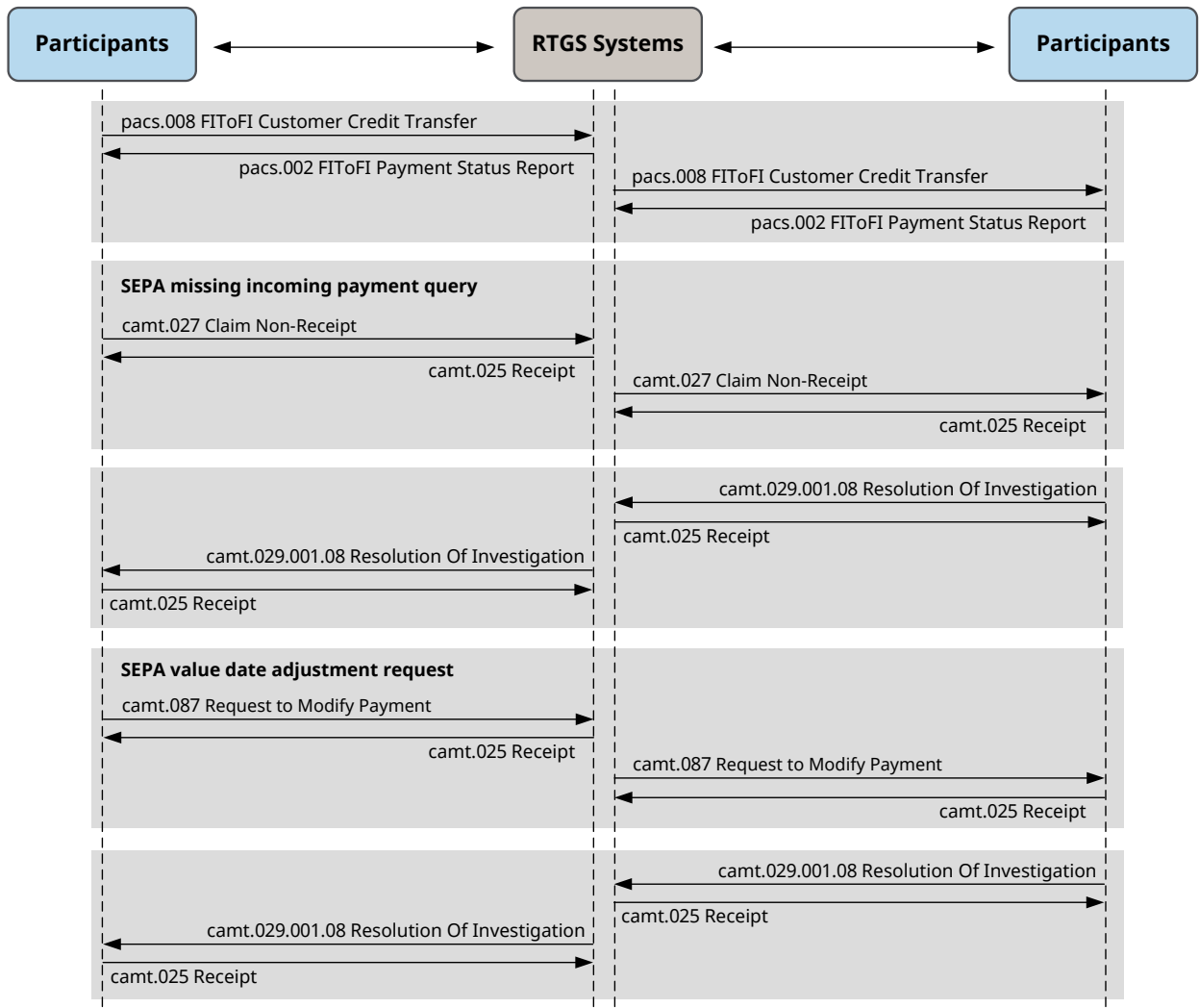


Figure 5: Message flows for SEPA investigations

Example of a message flow (the SEPA investigation begins with step 3):

1. A participant sends a "pacs.008" message to the RTGS system.
2. The RTGS system settles the payment and then sends a "pacs.008" message to the participant for whom the payment is intended.
3. The debtor agent initiates a SEPA missing incoming payment query (camt.027).
4. The RTGS system forwards the SEPA missing incoming payment query (camt.027) to the creditor agent.

5. The creditor agent sends a SEPA investigation resolution (camt.029.001.08) with positive or negative answer to the RTGS system.
6. The RTGS system forwards the SEPA investigation resolution (camt.029.001.08) with positive or negative answer to the debtor agent.

2.2.5 Message transport for SEPA query status

The following diagram shows the message flows for SEPA query status. The SEPA query status can be a query for an unanswered "SEPA return request", an unanswered "SEPA missing incoming payment query" or an unanswered "SEPA value date adjustment request". With this message the system only validates the submitted message and forwards this to the receiver, but does not really process the message.

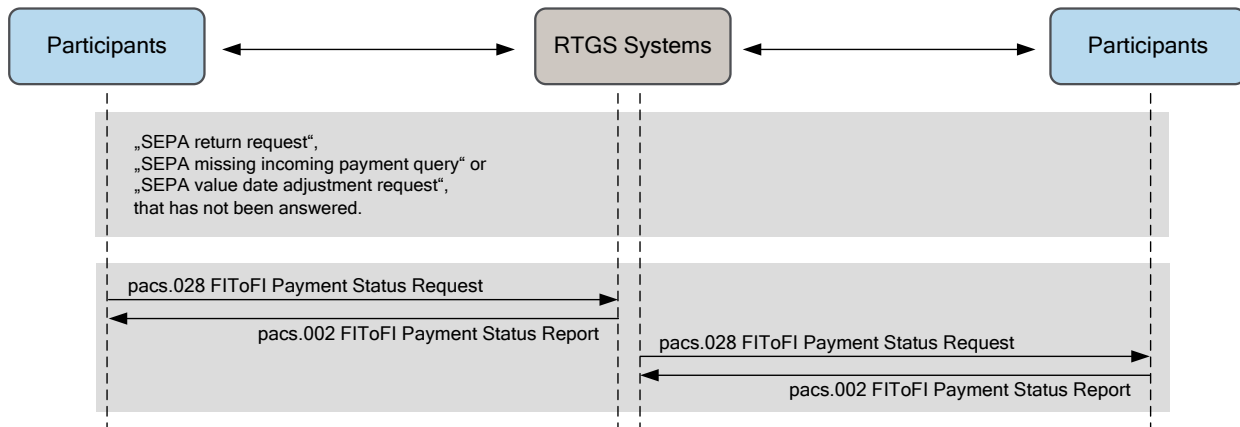


Figure 6: Message flows for SEPA query status

Example of a message flow:

1. A debtor agent sends a SEPA query status (pacs.028) to the RTGS system, because there is no response to a previously sent "SEPA return request", "SEPA missing incoming payment query" or "SEPA value date adjustment request" message.
2. The RTGS system forwards the SEPA query status (pacs.028) to the creditor agent.
3. The creditor agent responds with a corresponding message* to the RTGS system.
4. The RTGS system forwards the corresponding message* to the debtor agent.

* Response to unanswered "SEPA return request": Return (pacs.004) or "SEPA return request rejection" (camt.029.001.03).

Response to unanswered "SEPA missing incoming payment query": "SEPA investigation resolution" (camt.029.001.08).

Response to unanswered "SEPA value date adjustment request": "SEPA investigation resolution" (camt.029.001.08).

2.2.6

Queries

The following diagram shows the message flows for payment query messages between participants and the respective RTGS systems.

Transaction query

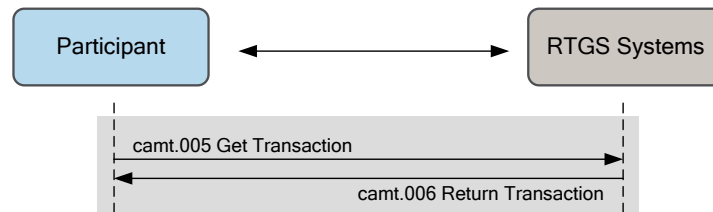


Figure 7: Message flows for transaction query messages

Example of a message flow:

1. The participant sends a "camt.005" transaction query message to the RTGS system.
2. The RTGS system acknowledges receipt by sending a "camt.006", containing either the query result or an error message, to the participant.

Settlement account query

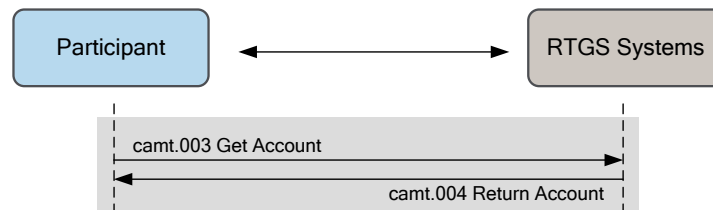


Figure 8: Message flows for settlement account query messages

Example of a message flow:

1. The participant sends a "camt.003" settlement account query message to the RTGS system.
2. The RTGS system acknowledges receipt by sending a "camt.004", containing either the query result or an error message, to the participant.

2.2.7

Modifications

The following diagram shows the message flows for modifications between participants and the respective RTGS systems.

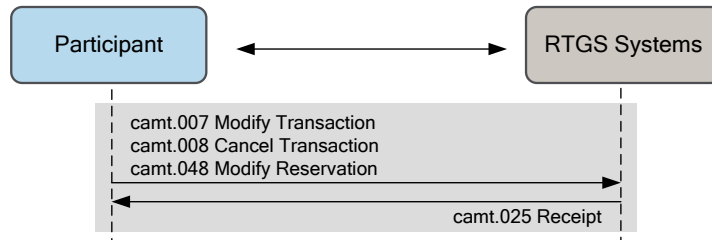


Figure 9: Message flows for modifications

Example of a message flow:

1. The participant sends a modification message "camt.007" (settlement order modification), "camt.008" (cancellation) or "camt.048" (liquidity modification) to the RTGS system.
2. The RTGS system acknowledges receipt by sending a "camt.025" to the participant.

2.3 Representation of XML messages

The logic structure of XML messages is a tree structure. This can be represented in various ways: in diagrams, tables or text. Representation in text is suitable for actual examples of messages, while tables and diagrams are mainly suitable for giving an overview of XML schemas. The abbreviations used in the Implementation Guidelines for ISO 20222 interbank messages are based on the schema for Swiss XML message specifications.

XML editors which have the option of graphical representation use symbols which may look slightly different depending on the type of editor (the illustrations in this document were produced using the editor XMLSpy from Altova GmbH). The main symbols are briefly introduced in Appendix A.

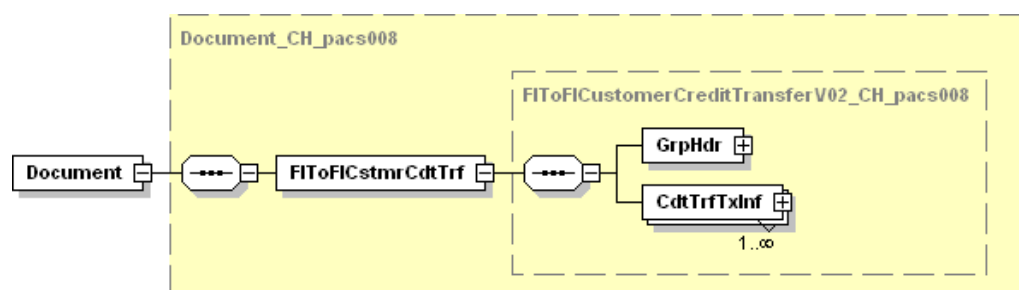


Figure 10: Example of graphical representation of an XML message

The following conventions apply to the presentation of Implementation Guidelines for ISO 20222 interbank messages:

Description of XML elements

In some publications, the names of XML elements are written as a single concept with no spaces, for example "*CreditTransferTransactionInformation*". In the interests of legibility, spaces are generally used in this document.

Data in tables

The tables contain information from the ISO 20222 Standard (Message Item, XML Tag, Multiplicity). The tables also contain information about the Swiss ISO 20222 payment standard as it applies to the RTGS systems.

The "Definition" column always contains, on the first line, the English name of the technical element (in bold). The second line contains the German name (in italics). The rest of the text describes the use of the element; the column "Payment Type-specific Definition" contains more information about its use.

The other columns show how that information is reproduced in the SIC and SWIFT FIN standard.

Colours used in the tables

The column headings are marked in **clay brown** for the information about the ISO 20222 standard and **light grey** for the information about the Swiss ISO 20222 payment standard for SIC⁴. Elements containing at least one sub-element are marked in **light blue** in the ISO 20222 columns.

Representation of the tree structure in the tables

So that it is possible to tell where in the tree structure an element comes, the hierarchy level is indicated by preceding "+" signs in the Message Item. For example, the IBAN for the "Debtor Account" is shown as follows:

```
Credit Transfer Transaction Information
+Debtor Account
++Identification
+++IBAN
```

Representation of choices

Elements with a choice are marked in the "XML Tag" column as follows:

```
{Or   for start of the choice
Or}   for end of the choice
```

2.4 Representation of terms from the ISO standard

In order to be able to distinguish better between terms from the ISO standard and business elements, the Implementation Guidelines for ISO 20022 interbank messages use the following representation conventions:

- All terms relating to the underlying ISO standard are written in *italics*.
Exceptions: In the tables of technical definitions that are generated automatically, it is not possible to show individual terms in italics and in headings no italic style is used.
- XML tags are also written in angle brackets. (Example: The transaction status is reported using the `<ReqHdlg>` element. This may only contain the sub-element `<StsCd>`.)
Exception: XML tags separated by forward slashes in path names are written without angle brackets. (Example: The type of reference number can be identified in the `CdtTrfTxInf/RmtInf/Strd/CdtrRefInf/Tp/CdOrPrtry/Cd` element.)
- Names of XML elements are written between quotation marks.
(Example: The *"Instructing Agent"* is used together with the *"Transaction Identification"* element and the *"Message Identification"* for duplicate checking.

2.5 Validation portal

The implementation of RTGS system messages according to the ISO 20022 message standard is supported by a central validation platform.

The aims of this platform are:

- to encourage consistent use of the ISO 20022 message standard, especially the Implementation Guidelines, by all financial institutions and software providers.
- to support software engineers during the implementation.
- to avoid errors and problems in delivering and receiving ISO 20022 messages.
- to provide a central upstream validation point as the basis for the mandatory tests between financial institutions and RTGS systems.

All ISO 20022 messages for which Implementation Guidelines have been published are supported by the validation portal:

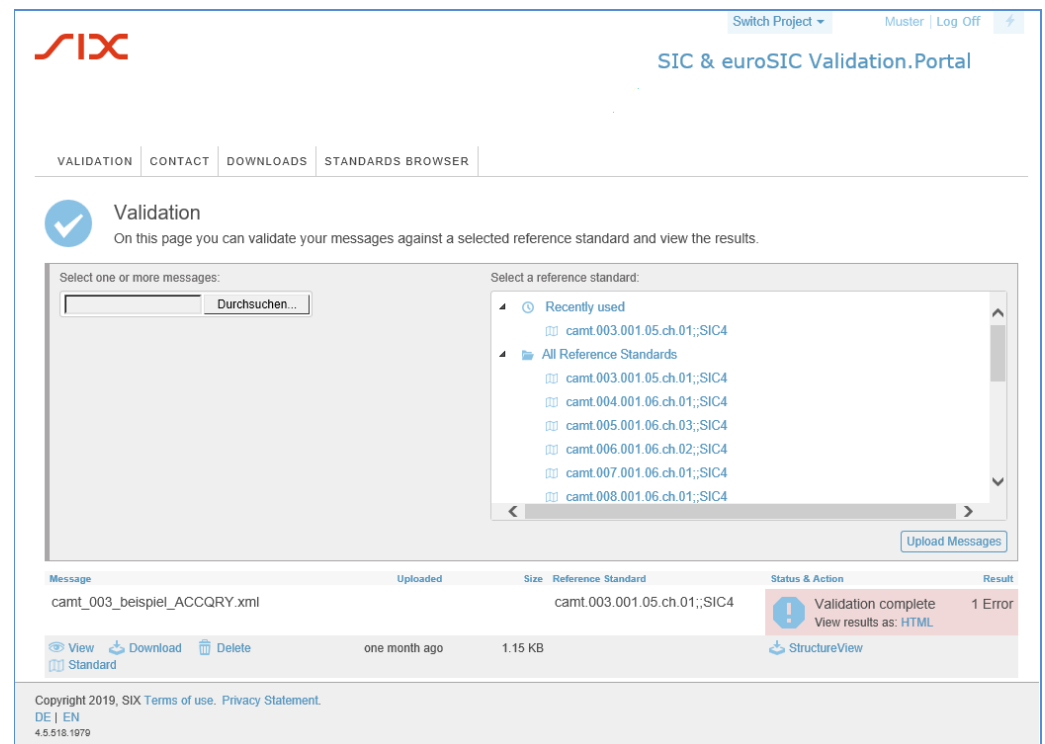


Figure 11: Validation portal for ISO 20022 interbank messages

The scope of the validation portal is as follows:

- Software providers and financial institutions can upload created messages to the validation portal via the Web.
- The validation results are made available to view and download in the form of a description of the generated test results (text and HTML).
- In the description that is generated showing the validation results, a distinction is made between "Errors" and "Notes". Whereas messages containing "Errors" will generally be rejected by the RTGS systems, "Notes" are intended to draw attention to possible discrepancies in the validated message from the recommendations in the Implementation Guidelines. "Notes" should not lead to a message being rejected.

- Providing interactive documentation.
- Download area for Implementation Guidelines, schemas and sample messages.
- Simplified representation of the graphical structure of the tested messages to support business departments.

The validation portal can be accessed under <https://validation.iso-payments.ch/SIC4>.
For full utilisation of the validation portal prior registration is required.

2.6 Reference documents

Ref	Document	Title	Source
[1]	SIC/euroSIC Handbooks	Swiss RTGS Handbook	SIX Interbank Clearing
[2]	Swiss Business Rules Customer - Bank	ISO 20022 Payments – Swiss Business Rules for Payments and Cash Management for Customer-to-Bank Messages	SIX Interbank Clearing
[3]	Swiss Implementation Guidelines Customer - Bank	ISO 20022 Payments – Swiss Implementation Guidelines for Customer-to-Bank Messages Credit Transfer (Payment Transactions)	SIX Interbank Clearing
[4]	EPC115-06	SEPA Credit Transfer Scheme Inter-Bank Implementation Guidelines	EPC
[5]	EPC132-08	SEPA Credit Transfer Scheme Customer-To-Bank Implementation Guidelines	EPC
[6]	Payments External Code Lists	Inventory of External Payment Code Lists	ISO
[7]	SWIFT Handbooks	SWIFT User Handbook	SWIFT
[8]	ISO Definitions	<p>ISO 20022 XML Credit Transfers and Related Messages, September 2009:</p> <ul style="list-style-type: none"> • Clearing and Settlement • Exceptions & Investigations <p>ISO 20022 XML Credit Transfers and Related Messages, January 2017:</p> <ul style="list-style-type: none"> • Exceptions & Investigations (pacs.028.001.01) <p>ISO 20022 XML Credit Transfers and Related Messages, February 2018:</p> <ul style="list-style-type: none"> • Exceptions & Investigations (camt.027.001.06; camt.029.001.08; camt.087.001.05) 	ISO

Table 2: Reference documents

Organisation	Link
SIX Interbank Clearing	www.iso-payments.ch www.sepa.ch www.six-interbank-clearing.com
ISO	www.iso20022.org
EPC	www.europeanpaymentscouncil.eu
SWIFT	www.swift.com

Table 3: Links to the relevant Internet pages

3 Business specifications for interbank messages

3.1 Duplicates checking

3.1.1 Duplicates checking for payment messages (pacs)

The RTGS systems carry out duplicates checking on 2 levels:

- Message level (A-Level)
- Payment or transaction level (B-Level)

The two checks are carried out independently of each other.

The RTGS systems only support individual transactions. This means that, for the payment to be executed, there must be no mistakes at either message level or transaction level.

The duplicates checking is carried out on both levels within the value dates permitted in the RTGS systems. The period therefore extends over the current value date at the time of delivery and 2 value dates back.

If a duplicate is detected during checking at message level and/or transaction level, the payment is rejected.

The duplicates checking for payment messages (pacs.008, pacs.009, pacs.004) is always carried out in association with identification of the participant making the payment (*Instructing Agent*).

The following pairs of elements are therefore used for duplicates checking:

Level	Element pair
Message level	<i>Instructing Agent/Message Identification</i>
Payment or transaction level	<i>Instructing Agent/Transaction Identification (pacs.008 and pacs.009) respectively Return Identification (pacs.004)</i>

Table 4: Levels for duplicates checking for payment messages (pacs)

Special case SEPA query status pacs.028

The duplicates checking for SEPA query status (pacs.028) is only carried out on message level.

The following pair of elements is therefore used for duplicates checking:

Level	Element pair
Message level	<i>Instructing Agent/Message Identification</i>

Table 5: Levels for duplicates checking for SEPA query status (pacs.028)

3.1.2 Duplicates checking for cash management messages (camt)

The duplicates checking for cash management messages (camt.027, camt.029, camt.056, camt.087) is only carried out on message level, in association with identification of the instructing participant (*Assigner*).

The following pair of elements is therefore used for duplicates checking:

Level	Element pair
Message level	<i>Assigner/Identification</i>

Table 6: Levels for duplicates checking for cash management messages (camt)

Special case queries camt.003 and camt.005

For query messages no duplicates checking is carried out.

Special case sight deposit account transfers (system manager) camt.050

The duplicates checking is similar to payment messages in association with identification of the participant making the payment (*Debtor*).

The following pairs of elements are therefore used for duplicates checking:

Level	Element pair
Message level	<i>Debtor/Message Identification</i>
Payment or transaction level	<i>Debtor/Transaction Identification (<InstrId>)</i>

Table 7: Levels for duplicates checking for sight deposit account transfers (camt.050)

3.2 Representation conventions

3.2.1 Representation conventions for amount fields

In an XML context, different forms of representation are permitted in amount fields. To ensure smooth processing, the following representation is specified:

- No use of leading or closing filler characters (space, white space, zero, plus sign).
- The maximum allowed number of decimal points depends on the currency, in accordance with ISO 4217.
- Amounts are always given as absolutes (no preceding characters). Where it is technically necessary to show negative amounts (e.g. the balance), the standard provides a separate element for identification purposes (Credit Debit Indicator).

3.2.2 Representation conventions for date fields

In an XML context, different forms of representation are permitted in date fields. To ensure smooth processing, the following representation is specified:

ISODate

- Representation in accordance with W3C specifications <http://www.w3.org/TR/xmlschema11-2/#date>
- Entering time zones is not supported in the RTGS systems. Dates are interpreted as the local date (Switzerland) or as the RTGS system date. Entering a time zone in an incoming message will result in it being rejected.

ISODatetime

- In contrast to the W3C specifications (<http://www.w3.org/TR/xmlschema11-2/#dateTime>), only the following form of representation is supported by the RTGS systems:

Form of representation	Interpretation in the RTGS systems
Local time (YYYY-MM-DDThh:mm:ss) Example: 2012-07-06T10:46:48	The time entered is interpreted as local time and counts as the relevant time for all subsequent processing steps.

Local time means the current time zone in Switzerland, taking account of summer/winter time (UTC+2 or UTC+1).

All other ways of representing time supported by the "ISODatetime" data type will lead to the submitted message being rejected when it is validated by the RTGS systems.

Exception: This general definition for "ISODatetime" does not apply to the element <CreDtTm>. Here only the specifications according to W3C are to be considered.

3.3 Character set

In ISO 20022 XML messages, characters from the Unicode character set UTF-8 (8-Bit Unicode Transformation Format) may generally be used (message has to be UTF-8 encoded). In XML messages for the RTGS systems, only the SWIFT character set is permitted:

The following characters, corresponding to the SWIFT character set, are accepted as in the EPC Guidelines:

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
0, 1, 2, 3, 4, 5, 6, 7, 8, 9
. (full stop)
, (comma)
: (colon)
' (apostrophe, also accepted as an escape character ')
+ (plus)
- (minus)
/ (slash)
((open round bracket)
) (closed round bracket)
? (question mark)
space

Validation of permitted characters on schema level

Compliance with the above mentioned restrictions in text elements is provided by character patterns in the schema. Different characters are permitted, depending on the usage of the element:

- **Text fields in general:**
 - If the string begins with one or several spaces, it must necessarily be followed by at least an other permitted character, which however must not be a space.
 - Pattern: []*[A-Za-z0-9+?/:(\)\.,'\-][A-Za-z0-9+?/:(\)\.,'\-]*
- **Mandatory references:**
 - *Message Identification* (A-Level)
 - *Transaction Identification* (B-Level)
 - No spaces are permitted.
 - Pattern: [A-Za-z0-9+?/:(\)\.,'\-]*

- **Acknowledgement of incorrect elements in pacs.002 and camt.025:**

- *Additional Information* (AddtlInf)
- Contains the @ character to indicate attributes in the XPath.
- No spaces are permitted.
- Pattern: [A-Za-z0-9+?/:(\.,'\-]*

- **Proprietary codes (Prtry) and other identifications:**

- The first character must not be a space.
- Pattern: [A-Za-z0-9+?/:(\.,'\-][A-Za-z0-9+?/:(\.,'\-]*

All text elements have a minimum length of one character in the schema. In conjunction with the defined pattern it is ensured that no technically empty elements can be sent (<element> </element> or <element/>).

Using special characters

The following special characters comply with XML syntax but must not be used within text elements/data: tab character (hexadecimal #x9), line feed character (#xA) and carriage return character (#xD).

Using "CDATA"

The use of "CDATA" is not permitted and any such information will be ignored.

"CDATA" is only used on payment acknowledgements from RTGS systems to participants resulting from an incorrect payment message, or when answering a query about a single transaction.

3.4

Using the BIC in payment messages

Because RTGS systems validate the BIC against the "SWIFT BIC Directory", only a "published BIC" is permitted in elements requiring a BIC (FinInstnId/BIC). Messages containing other, so-called "unpublished BICs" will be rejected.

3.5 Conceptual changes associated with the switch to ISO 20022

The following table shows how the former service types (in the "SIC3 Service" column) are assigned to ISO 20022 message types and payment types.

Use case	ISO 20022 message type	Payment type	Designation	SIC3 Service	SWIFT MT
Customer payment	pacs.008	ESRPMT	ISR payment	CREDIT TRF	MT103
SEPA credit transfer	pacs.008	SEPPMT	SEPA payment	CREDIT TRF	MT103
Customer payment	pacs.008	SLRPMT	Salary payment	CREDIT TRF	MT103
Customer payment	pacs.008	CSTPMT	Generic customer payment	CREDIT TRF	MT103
FI-to-FI-payment	pacs.009	F2FPMT	FI-to-FI-payment	CREDIT TRF	MT202
Compensation payment	pacs.009	CMPPMT	Compensation payment	CREDIT TRF	MT202
Cover payment	pacs.009	COVPMT	Cover payment	CREDIT TRF	MT202COV
Sight deposit account transfer by the participant	pacs.009	PPTTSD	Sight deposit account transfer by the participant	CREDIT TRF	MT202
Return	pacs.004	CSTRTN	Normal payment return	CREDIT TRF	MT103
Return	pacs.004	SEPRTN	SEPA payment return	CREDIT TRF	MT103
Direct debit payment	pacs.008	ESRDEB	ISR payment resulting from a direct debit	LS	MT103
Direct debit payment	pacs.008	IPIDEB	IPI payment resulting from a direct debit	LS	MT103
SECOM settlement	pacs.009	SECSTM	SECOM settlement	SECO	–
Eurex settlement	pacs.009	EUXSTM	Eurex settlement	EURX	–
Repo settlement	pacs.009	REPSTM	Repo settlement	REPO	–
Terravis settlement	pacs.009	STVSTM	Terravis settlement	STV	–
Viseca settlement	pacs.009	VISSTM	Viseca settlement	VISE	–



Use case	ISO 20022 message type	Payment type	Designation	SIC3 Service	SWIFT MT
Debit settlement	pacs.009	BCMSTM	Bancomat settlement	BM	–
Debit settlement	pacs.009	TCMSTM	Tancomat settlement	TM	–
Debit settlement	pacs.009	POSSTM	EFT/POS settlement	POS	–
Sight deposit account transfer by the system manager	camt.050	SMTTSD	Sight deposit account transfer by the system manager	SNB	–
Transfer from sight deposit account	camt.050	SMTFSD	Transfer from sight deposit account	SNB	–
Sight deposit account transfer by the system manager	camt.050	SMTTSD	Sight deposit account transfer by the system manager	SEB	–
Transfer from sight deposit account	camt.050	SMTFSD	Transfer from sight deposit account	SEB	–

Table 8: Assignment of the former service types to ISO 20022 message types or payment types

Appendix A: Symbols for graphical XML representation

Expand and collapse symbols

Wherever parts of the tree structure can be expanded or collapsed, expand and collapse symbols are added to the symbols in the graphical representation. These consist of a small square containing either a plus sign or a minus sign.

-  Expand symbol: if you click on the plus sign the tree structure is expanded so subsequent symbols (attributes or so-called child elements) are displayed. The expand symbol then changes to a collapse symbol.
-  Collapse symbol: if you click on the minus sign, the tree structure is collapsed again, i.e. the subsequent symbols disappear again. The collapse symbol then changes to an open symbol again.

Elements



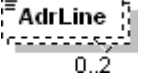


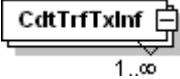

Elements are shown as rectangles containing the name of the element. For mandatory elements, the rectangle is shown with a continuous line, for optional elements the line is dotted.

For complex elements, which, unlike simple elements could contain attributes or other elements (child elements), the rectangle has an expand or collapse symbol on the right.

Three little lines in the top left corner of the rectangle indicate that the element contains data (otherwise the element contains child elements).

Elements which are allowed to occur more than once are shown as 2 superimposed rectangles. Bottom right, you can see the minimum and maximum number of occurrences.

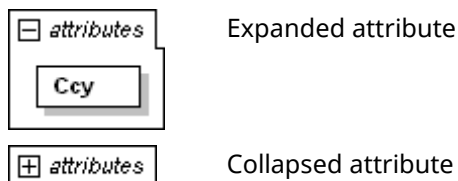
Examples:

	Mandatory simple element
	Optional simple element
	Optional simple element which can occur a maximum of twice
	Mandatory complex element (with child elements) with collapsed tree structure
	Mandatory complex element (with child elements) with expanded tree structure
	Mandatory complex element (with child elements) which can occur any number of times
	Mandatory complex element (with attributes)

Attributes

Attributes are also shown as rectangles, containing the name of the attribute. They are surrounded by a box containing the word "attributes" and an expand or collapse symbol. For mandatory attributes, the rectangle is drawn with a continuous line, for optional attributes the line is dotted.

Example:



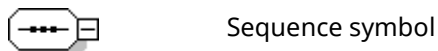
Choice

To the right of a choice symbol, the connecting lines branch off to the possible elements, of which only one can be present in the XML message.



Sequence

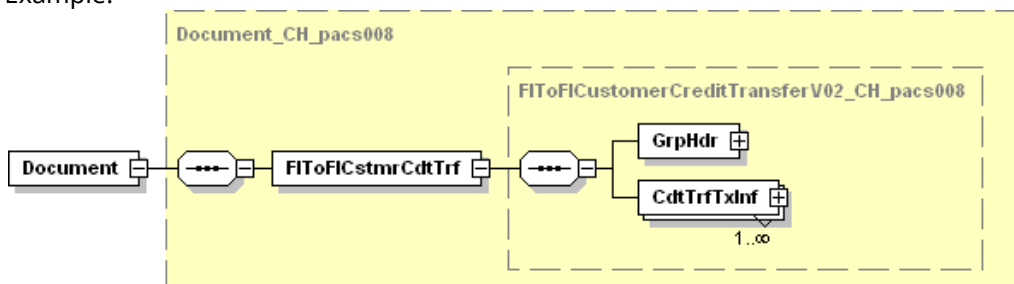
To the right of a sequence symbol, the connecting lines branch off to the elements which are to be used in the XML message in the order shown (optional elements and attributes can of course also be omitted).



Frame

For increased clarity, all the child elements, attributes and other information belonging to a complex element are surrounded by a dotted frame with a yellow shaded background.

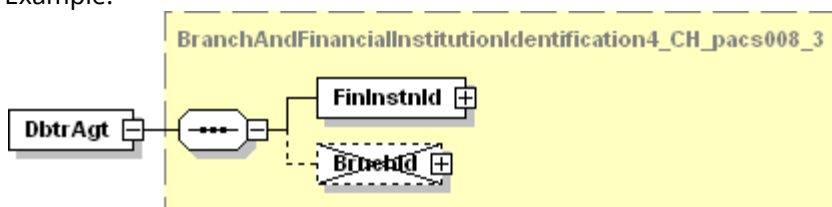
Example:



Elements not used in Switzerland

Elements not used in Switzerland are struck through on the diagram.

Example:



Appendix B: Definitions of terms

Term	Definition
Use case	A use case describes the interaction between the user and the system that is required in order to achieve a technical objective on the part of the user. The description is in general terms, not related to the specific technical solution. Use cases effectively meet the requirements of the participants.
Direct routing	For certain messages or payment types in favor of PostFinance, the RTGS system checks whether the creditor's account is saved in the master data for a participant. If it is, the payment is routed by the RTGS system directly to that participant and not to PostFinance.
Concatenation	In concatenation, one external identification (e.g. IID) is connected to another external identification of the same type. Payments in favor of a concatenated identification are automatically routed in the RTGS system to the other identification. Concatenation is a preliminary stage before cancellation.
Payment type	One ISO 20022 message can show several forms of payment. To distinguish between these, different payment types are defined (e.g. ISR payment, SEPA payment).

Table 9: Definitions

Appendix C: Table of figures

Figure 1:	Documentation structure	7
Figure 2:	Message flows for payment messages.....	10
Figure 3:	Message flows for reconciliation and notification messages.....	11
Figure 4:	Message flows for payment cancellation requests.....	12
Figure 5:	Message flows for SEPA investigations.....	13
Figure 6:	Message flows for SEPA query status	14
Figure 7:	Message flows for transaction query messages	15
Figure 8:	Message flows for settlement account query messages	15
Figure 9:	Message flows for modifications	16
Figure 10:	Example of graphical representation of an XML message	17
Figure 11:	Validation portal for ISO 20022 interbank messages	19

Appendix D: Table of tables

Table 1:	Implementation Guidelines	8
Table 2:	Reference documents.....	21
Table 3:	Links to the relevant Internet pages	21
Table 4:	Levels for duplicates checking for payment messages (pacs).....	22
Table 5:	Levels for duplicates checking for SEPA query status (pacs.028).....	22
Table 6:	Levels for duplicates checking for cash management messages (camt).....	23
Table 7:	Levels for duplicates checking for sight deposit account transfers (camt.050).....	23
Table 8:	Assignment of the former service types to ISO 20022 message types or payment types..	28
Table 9:	Definitions	31