"Technical Interoperability Framework for SEPA - Compliant Payments Processing"

EACHA Taskforce Report v4.1

Document Reference	:	EACHA_2009_4.1 Interoperability
Issue / date	:	4.1 / March 10, 2009
Produced by	:	EACHA Task Force Interoperability
Document status	:	Authorised by EACHA April, 2009
Circulation	:	Draft versions (v1.0x-v2.9x, v3.01-2 and v4.0) are limited to Members of EACHA and Taskforce EACHA "Interoperability".
		Annex II - IV only available on request
		Consultation versions are made available to EPC, ECB and Swift.
		Authorised versions are brought into the public domain

Content

Only available on request:

Annex II: **EACHA SCT message guidelines version 3.2, 1 March 2009**

Annex IIIA: **EACHA SDD "core" message guidelines version 3.1, 10 March 2009**

Annex IIIB: **EACHA SDD "B2B" message guidelines version 1.1, 10 March 2009**

Annex IV: **EACHA standard for SEPA file transmission between EACHA-CSMs version 1.4, 10 March 2009**

1   Document information

1.1   About EACHA

EACHA aims:

• to be a forum for the sharing of information amongst its members;

• to advance the views of its members on issues of general interest to the payment industry;

• to work on specific issues as and when they arise e.g. developing common standards for SEPA inter bank clearing and settlement activities.

The association created in September 2006 is a not for profit organisation and will not perform any commercial or operational role in payments processing. Any commercial relationships will be outside the Association. Please refer to chapter 8 for the EACHA participant list of organisations contributing to this Technical Paper and for EACHA contact information.

In January 2006 EACHA initiated an ad hoc task force to draft a technical paper on Interoperability in relation to giro payments processing in light of the SEPA challenges. The purpose of this 'EACHA taskforce on interoperability' was to investigate interoperability and to define the guiding principles from a payments processing perspective of an open standard industry wide interoperability framework.

Amendments and updates to the Interoperability Framework are the responsibility of the EACHA Plenary.

1.2   Purpose and Scope of Document

EACHA's aim is to complement the SEPA standards by establishing an interoperability framework that adheres to SEPA goals for the product scheme and the market and available to be used by payment processors and payment service providers at least realising interoperability between infrastructures. The technical paper version 0.93 (as published in September 2006) was the first step. The EACHA framework document version 2.0 (as published in April 2007) described the different elements needed to realise interoperability. The EACHA framework document version 3.0 (as published in August 2007) further elaborated on the open issues listed in version 2.0 needed to realise interoperability in order to allow every payment processor or institution willing, to implement these interoperability conventions and principles based on stable and authorized specifications.

The EACHA Framework document version 4.0 introduces the EACHA guidelines for SEPA Direct Debit based on Core rulebook version 3.1. Improvements to the SEPA Credit transfer EACHA guidelines based on rulebook 2.3 as well as the consequences of the introduction of SCT rulebook 3.2 are provided. This document will provide a management summary on the backgrounds and the concepts introduced in version 2.0 to provide for interoperability for SEPA payments.

This technical paper will reference the PSD terminology; parties will be addressed in their role as payment service providers or payment processor. This technical paper concentrates on the payment function rather than who is performing the specific function(s) or process(es), as many banks combine (parts of) both roles. Whenever in this document the term "bank" is used it

references its role as payments service provider. Within the scope of this paper we therefore will refer to the payments processing function. A payment processor in the capacity of a Clearing and Settlement Mechanism (CSM) allows participating payment service providers or their branches to clear and settle payments made between them. This document will reference the use of the term CSM from the CSM framework.

2   EACHA Technical Interoperability Framework

2.1   Interoperability supporting SEPA goals

The SEPA is emerging ever more clearly. We are witnessing the introduction of various essential architectural elements to complement the design of the SEPA:

1   the PSD to harmonise the legal and regulatory environment within the SEPA;

2   shared European governance and oversight by the National Banks;

3   Target2 as common settlement platform effectively overcoming national boundaries for settlement purposes;

4   the SCT/SDD rulebooks issued by the EPC in conjunction with the Implementation Guidelines providing common payment products;

5   standardised (ISO20022) UNIFI messages introducing XML as main stream technology in payments leveraging IP related developments;

6   "Interoperability" to allow any payment service provider or payment processor can use the same technical conventions to send to or receive payments from any other party Based on this ability.

The introduction of these well defined architectural elements together is crucial to build our common SEPA for efficient payments between citizens, corporations and institutions where interior boundaries will have disappeared effectively. The new SEPA, once fully deployed, can be characterised as a scale free network were all can reach all because the architectural elements of SEPA are principally available equally to all.

2.2   Why the need for "Interoperability"?

"Interoperability", the ability to be systematically and consistently accessible to other payments service providers and processors, is essential if we are to create STP processing and open, competitive payments processing within SEPA at the same time:

•   Technical interoperability is needed to reach SEPA objectives on STP processing

Based on common interoperability, a seamless payment processing environment will be created at an operational level so that straight-through processing is maximised as to realise the SEPA scheme goals.

•   Technical interoperability vital to create SEPA level playing field

Interoperability will enable competition between payment processors, so that payment service providers can easily connect to or switch processing partners, or, if they desire to do so, to connect easily to other payments service providers directly. Technical interoperability will enable the payment processors to reach new markets. Interoperability will potentially create accessibility to and from all, thus realising a level playing field for all involved.

Full interoperability will lead to the freedom for banks to change community, or to join several communities, all based on the same interoperability basics. Processors will compete based on the volumes they attract and on the services they provide. Some of them will specialise to attract business. Combined with low switching cost as a result of shared Interoperability, the market will constantly arbitrage inefficiencies and barriers.

EACHA believes that interoperability is a key component of SEPA infrastructure in a competitive market which does not impede infrastructural consolidation.

2.3 Building Interoperability framework on EPC work

The standards defined in the European Payment Council (EPC) Scheme Rulebooks and Implementation Guidelines, in the UNIFI message sets and the PEACH/CSM framework laid the foundation for interoperability. To reach the broad spectrum of goals for the SEPA, EACHA believes that additional operational and technical conventions for technical interoperability are needed.

EACHA explicitly recognises the EPC's role in defining the SEPA payment schemes and the business interoperability that they ensure. EACHA seeks to standardise the technical procedures necessary for the technical interoperability of CSMs.

EACHA proposes to create the basis for interoperability through an open and freely usable framework based on technical accessibility to the advantage of all involved in payments processing, based on a given set of technical standards guidelines and conventions.

The EACHA framework on interoperability aims to promote the following shared goals:

• A harmonised implementation of SEPA and end-to-end payment processing at the level of payment infrastructure

• Competitive choices for payment processors and for banks

• Market-led rationalisation to boost efficiency and quality

Banks and CSMs are diverse in their architectures, process flows and business rules. EACHA seeks a flexible approach to interoperability for SEPA stakeholders for they do not have uniform needs. To this end, specific conventions are needed in addition to SEPA scheme rules.

For banks, interoperability will create a seamless payment processing environment on an operational level so that straight-through processing is maximised as to realise the SEPA goals. It promotes competitive choices for banks as well as creating operational flexibility and resilience by avoiding a single point of failure in the SEPA market.

For payment processors, interoperability will help reduce the fragmentation of market infrastructures during and after the transition to SEPA. By partially harmonising CSM practices, interoperability will improve competition. Instead of avoiding market consolidation, Interoperability will actually be one of the enablers of market consolidation. Interoperability will lead to a better competition in the market, as unnecessarily protective boundaries will be removed.; Interoperability will not be compulsory and some CSMs may provide reach to others.

The SEPA Direct Debit Core and SEPA Credit Transfer schemes are the focus for the framework, soon to be extended with SEPA Direct Debit B2B. The framework permits the exchange of SEPA payments within an AOS community.

The framework will set the minimal specifications of the technical elements needed to secure interoperability. It therefore restricts the interoperability elements to those which are strictly necessary to realise SEPA goals, whilst allowing market forces to act freely.

Whenever possible, this framework reuses existing open standards and – whenever this is not possible – widely accepted international procedures to avoid the fragmentation of standards. No restrictions are placed on the use of the framework or the standards underlying it.

EACHA will maintain and issue new versions of this framework in line with changes to the EPC rulebooks and the related technical standards.

2.4   The EACHA Model

The EACHA Model consists of a number of technical elements, which together will enable any of the possible ways of exchanging a payment between two payment service providers. This allows a sending payment service provider to choose the appropriate mechanism to reach the receiving payment service provider from any of the mechanisms it has available.

The interoperability rules and options are consistent with SEPA schemes and existing CSM legal and operational arrangements. No additional financial or legal risks need to be assumed by CSMs and no significant investments in IT development or connectivity are envisaged.

The framework can be used in ALL prevalent payment chain topologies: e.g. bilateral bank to bank, bank to CSM for intra CSM payments and bank to CSM for inter CSM payments. The framework can be used between any two parties in any of these payment chains. In principle it supports any length of payments chain based on the ability to "daisy chain" the parties (i.e. the message flows) involved. (See Annex II SEPA Core Credit Transfer Messages EACHA guidelines; see Annex III for SEPA Core Direct Debit Messages EACHA guidelines)

Payments service providers as well as CSMs will often have multiple options to reach the recipient payment service provider. To allow payment service providers to reach SEPA scheme Payment service providers in efficient processing chains routing provisions have been detailed resulting in standardised CSM reach tables to facilitate individual Payment service providers to easily compare reach options from various reach methods. (See Annex I: Routing provisions)

To facilitate an STP exchange of the payments, with clarity about the usage of and checks on each of the fields EACHA create a detailed message definition on the basis of the UNIFI XML-messages and the EPC Implementation Guidelines. These detailed definitions are accompanied by a message flow, displaying the ways in which these message definitions can be used between two parties exchanging payments. (See Annex II SEPA Core Credit Transfer Messages EACHA guidelines and Annexes IIIA and IIIB on SEPA Direct Debit Messages EACHA guidelines)

Embedded in the EACHA model the fiduciary cq bridging account concept is introduced (See Annex I Principles to protect fiduciary accounts in Inter-CSM settlement) to enable settlement in any possible method of exchange. At the same moment independent reconciliation possibilities are created while settling payments via target 2. (See annex I: chapter 7 Reconciliation process)

3   Participant list EACHA Task force on Interoperability

BBS, Norway	Fina, Croatia	SSB-SIA, Italia
BdI, Italy	Giro, Hungary	SIBS, Portugal
BGC, Sweden	Iberpay, Spain	SIC, Switzerland
BS, Bulgaria	Equens, Netherlands/Germany/Italy	STET, France
Deutsche Bundesbank, Germany	KIR, Poland	VocaLink, United Kingdom
CEC, Belgium	OENB, Austria	
DIAS, Greece	PBS, Denmark	

For information on this technical paper please contact:
info@eacha.org

4   Timescales

Date/Period	Milestone
August 2006	EACHA Technical Paper on Interoperability v0.93 published to EPC
March 2007	Interoperability framework 2.0 published to stakeholders for consultation i.e. Central Banks and European banking industry
May 2007	Feedback from industry consultation
June 2007	Version 2.1 of the framework issued including consultation feedback
August 2007	Version 3.0/3.02 including the results of work on outstanding issues
28 January 2008	Start of SEPA
September 2008	Version 4.0: SDD, interoperability & SCT updates.
March 2009	**Version 4.1: various updates, SDD reach table provisons**

Annex I: Interoperability provisions

Content Annex I

5   Principles to protect "fiduciary" accounts in Inter-CSM settlement

The concept is that payments flowing between two CSMs go through two clearing and settlement cycles, one cycle in CSM1 and one in CSM2. Settlement will use TARGET2 [T2] Payment Module [PM] accounts and will always take place in TARGET2 using the settlement capabilities of the Ancillary System Interface. i.e.

Cycle I: initiated by CSM1, funds are debited from the accounts of sending payment service providers and credited to a T2 PM account. On successful completion of settlement the payment messages are sent from CSM1 to CSM2.

Cycle II: initiated by CSM2, the funds are debited from the T2 PM account and distributed to the beneficiary payment service providers connected to CSM2. On successful completion of settlement, CSM2 sends the payment messages to the beneficiary payment service providers.

This approach means that in the period between the first settlement cycle and the second, the funds have passed from the control of the payment service providers connected to CSM1 and are held in a TARGET2 PM account. The intention is that funds will only be held in the PM account intra day. Overnight balances are not envisaged.

There are two slightly different accounting procedures envisaged which are described further in section 5 of this document.

The following diagram illustrates this generic model.
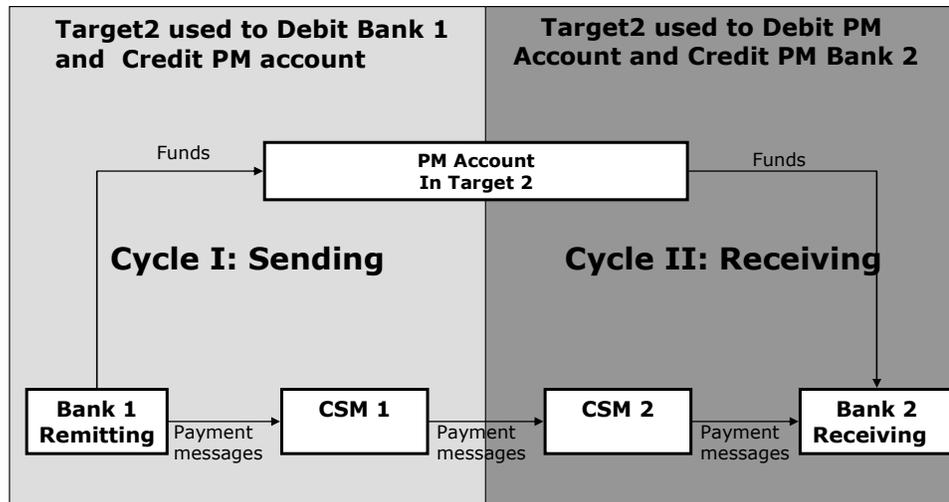
Settlement, credit and liquidity risk for the receiving CSM and its participants and the sending CSM and its participants will be mitigated as follows:

• To eliminate settlement risk, a "settlement before output" model will be used, such that messages are only ever forwarded to CSM2 by CSM1 when the first settlement cycle has been successfully completed.

• The inter-CSM payments settled in the T2 CSM account represent the gross credit position of the community of the receiving participants vis-à-vis the community of the sending participants. This feature allows an "easy" resending of the inter-CSM payments not settled on the receiving payment service providers accounts back to the sending CSM, in case the receiving CSM settlement procedures failed for any reason. There will be no unwinding of inter-CSM multilateral balances as only gross credit positions are dealt with. CSMs need to have appropriate measures in place to avoid overnight balances on the T2 CSM account.

• The CSM account must be protected and limited to ensure that it is only used for the specific purpose of inter CSM settlements and to protect against insolvency. Such a limitation should ensure – inter alia - that the T2 CSM account performs a purely technical function within the inter-CSM payments settlement procedure and that the inter-CSM payments are settled in the T2 CSM account in the interest of the community of the CSM participants and "legally" segregated/dedicated for the benefit of the receiving CSM participants concerned. Currently TARGET2 is not expected to provide technical and legal restrictions to the use of funds in a PM account by its holder. EACHA is working with European central banks to define an appropriate legal structure.

• In the end, it is worth noting that inter-CSM payments - once settled in the T2 CSM account of the receiving CSM - are "legally" final according to the settlement finality rules applicable to the sending CSM/TARGET2 system, and therefore the receiving CSM (and its participants) are protected against possible insolvencies on the sending side. Protection against insolvencies on the receiving side will depend on the settlement finality rules applicable to the receiving CSM/TARGET2 system and also will have to be dealt with using a fiduciary contract solution.

5.1 Clearing and Settlement among payment service providers participating in different CSMs

TARGET2 will offer several solutions for settling ancillary system transactions, beyond the boundaries of a single national central bank. From a technical point of view the six settlement procedures supported by the Single Shared Platform (SSP) of TARGET2 for the settlement of ancillary systems (through the so-called Ancillary System Interface - ASI) will enable each CSM on behalf of its clients to directly debit or credit accounts at NCBs other then the NCB which is responsible for the oversight of the CSM.

EACHA will use TARGET2 as the settlement mechanism for settlement.

Settlement among Payment service providers participating in different CSMs

Within the generic 2 cycle model already described in section 4 of this document, EACHA recognises that there are two approaches to the use of PM accounts in terms of the ownership of the accounts i.e.

• Fiduciary account model: in this model the PM account used to hold funds between cycles 1 and 2 is in the name of CSM2 [although the funds will be owned by the Payment service providers connected to CSM2].

- Liquidity bridge model: in this model the PM account is owned by a commercial Payment service provider that is a settlement bank in CSM2

5.2   Fiduciary account model

According to the "Communication on TARGET2" released by the ECB, CSMs will be eligible to be direct participants in TARGET2 as "organisations providing clearing or settlement services subject to oversight by a competent authority" and, therefore, will be allowed to hold settlement accounts in the Payment Module (PM) of the Single Shared Platform (SSP). In the fiduciary account model, such accounts (hereinafter referred to as T2 CSM accounts) would be used to hold intra day funds solely for the purposes of settling transactions that have to be transmitted to participants of other CSMs.

Where one CSM is sending payments to another CSM, the T2 CSM fiduciary account used will always be in the name of the receiving CSM. Accordingly, the sending CSM needs to be able to hold such a PM account and be able to credit such an account in its settlement [i.e. in cycle 1].

5.3   Shielding insolvency risks of fiduciary account holder

The principle risk of a settlement account used as fiduciary account to support inter CSM payments is the risk of insolvency of the account holder. All other risks are mitigated by above principles. The legal construction, which has to be set up in national law between the CSM and the NCB overseeing the facility, is to prevent, in case of insolvency, that balances are drawn into the insolvency and that proper and timely unwinding can take place to the owners of these balances.

6 Reconciliation process

The scope of the EACHA reconciliation proposal is focused on the reconciliation between two CSM's exchanging transactions. It can be easily extended however to the CSM to bank domain. As the specific element being added for reconciliation purposes (end-to-end-id/reconciliation-id) is for reconciling between two parties exchanging, the contents of these elements should be removed again before forwarding the message to the next party. If there is again a reconciliation need on this next step the same structure can be used again.

6.1 SEPA Credit Transfer

For SEPA Credit Transfer two separate flows will need to be reconciled for Credit Transfers, the normal Credit Transfer and the Credit Transfer Return. Each will be separately defined.

6.1.1 Normal Credit Transfer

The specific part of the process where reconciliation is necessary is pictured below:
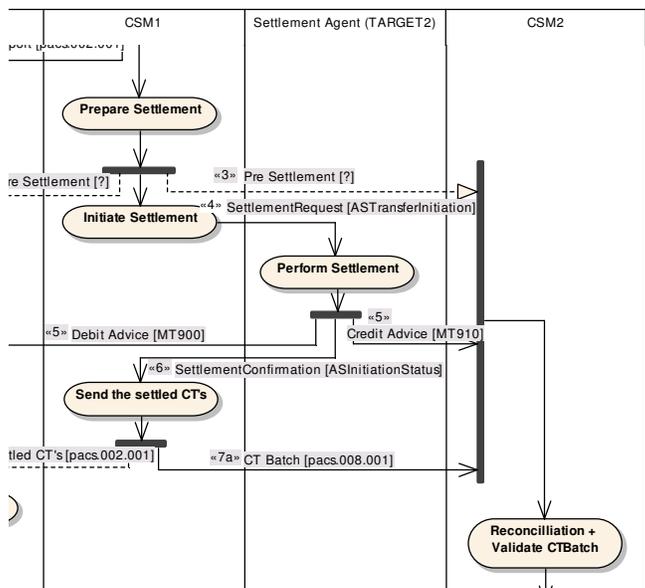
The second CSM will normally have 2 (and a maximum of 3) incoming flows which were initiated by the first CSM for settlement and transfer of the Credit Transfers.

In the Settlement Request the first CSM will put a specific settlement reference number and will of course specify the settlement amount. Leaving out the not relevant parts, this would result in a following example Settlement Request:

```
<pain.998.001.01>
   <PrtryDt>
     <Tp>ASTransferInitiation</Tp>
     <SspPrtryDt>
       <GrpHdr>
          …
          <InitgPty>
            <FI>
               <BIC>CSM1CC2LXXX</BIC>
            </FI>
          </InitgPty>
       </GrpHdr>
       <PmtInf>
          <ReqExctnDt>2008-01-02</ReqdExctnDt>
          <FrstAgt>
            <BIC>CSM1CC2LTEC</BIC>
          </FrstAgt>
          <PmtTx>
            <PmtId>
               <InstrId>ABC1234</InstrId>
               <EndToEndId>RECONREF001</EndToEndId>
            </PmtId>
            <Amt>
               <InstAmt>300.00</InstAmt>
            </Amt>
            <FnlAgt>
               <BIC>CSM2CC2LFID</BIC>
            </FnlAgt>
            …
          <PmtTx>
       <PmtInf>
       …
     </SspPrtryDt>
   </PrtryDt>
</pain.998.001.01>
```

In this case CSM2 makes use of the Fiduciary account.

If successfully executed the above stated part of the ASTransferInitiation will result in the following MT910 to the beneficiary in TARGET2. In this case it will be send to the Fiduciary BIC code of CSM2. This is under the assumption that the second CSM has requested these optional MT910 messages to be send.

```
:20:AS02100240012345
:21:RECONREF001
:25:CSM2CC2LFID
:32A:080102EUR300,00
:52:CSM1CC2LXXX
```

This then needs to be able to be connected to the pacs.008 which will be send after a successful settlement. This is depicted below in an extract of this message:

```
<pacs.008.001.01>
  <GrpHdr>
    …
    <IntrBkSttlmDt>2008-01-02</IntBkSttlmDt>
    …
  </GrpHdr>
  <CdtTrfTxInf>
    …
    <IntrBkSttlmAmt Ccy="EUR">300</IntrBkSttlmAmt>
    …
    <InstrForNxtAgt>
      <InstrInf>/STTLMREF/RECONREF001</InstrInf>
    </InstrForNxtAgt>
    …
  </CdtTrfTxInf>
</pacs.008.001.01>
```

As a result the second CSM can now reconcile the receive pacs.008 with the received MT910.

All the amounts of the settlements done with reference 'RECONREF001' from initiating CSM 'CSM1CC2LXXX' on Settlement Date '080102' need to be added up and need to match to the sum of the amount of all the transactions received in a pacs.008 from the Swift sender 'CSM1CC2L' with reference (in instruction for next agent field) 'RECONREF001' and settlement date '2008-01-02'.

In case the optional functionality of a pre settlement advice is used, the second CSM can firstly reconcile this pre settlement advice with the received Credit advice in the MT910. This way it can be ensured the predicted and intended amount ended up on the settlement account. This means that the amount in field 32A of the Credit advice should equal the amount specified in the pre settlement advice and that the related reference in field 21 of the Credit advice should match the end-to-end id specified in the pre settlement advice.

6.1.2 Credit Transfer Return

The flows for a Credit Transfer Return are much like the flows of a normal Credit Transfer, with the exception of the messages used, where the pacs.008 is replaced by the pacs.004. Looking at the previous Credit Transfer example the resulting messages for the Return would be as follows:

In the Settlement Request the second CSM will put a specific settlement reference number and will of course specify the settlement amount. Leaving out the not relevant parts, this would result in a following example Settlement Request:

```xml
<pain.998.001.01>
  <PrtryDt>
    <Tp>ASTransferInitiation</Tp>
    <SspPrtryDt>
      <GrpHdr>
        …
        <InitgPty>
          <FI>
            <BIC>CSM2CC2LXXX</BIC>

</FI>
        </InitgPty>
      </GrpHdr>
      <PmtInf>
        <ReqExctnDt>2008-01-03</ReqdExctnDt>
        <FrstAgt>
          <BIC>CSM2CC2LTEC</BIC>
        </FrstAgt>
        <PmtTx>
          <PmtId>
            <InstrId>ABC1234</InstrId>
            <EndToEndId>CSM2RECREF0001</EndToEndId>
          </PmtId>
          <Amt>
            <InstAmt>300.00</InstAmt>
          </Amt>
          <FnlAgt>
            <BIC>BANKCC2LBRI</BIC>
          </FnlAgt>
          …
        <PmtTx>
      <PmtInf>
        …
    </SspPrtryDt>
  </PrtryDt>
</pain.998.001.01>
```

In this case CSM1 makes use of a liquidity bridge bank.

If successfully executed the above stated part of the ASTransferInitiation will result in the following MT910 to the beneficiary in TARGET2. In this case it will be send to the Liquidity Bridging bank BIC code of the Bridge bank of CSM1. This is under the assumption that this bank has requested these optional MT910 messages to be send.

```
:20:AS02100240012345
:21:CSM2RECREF0001
:25:BANKCC2LBRI
:32A:080103EUR300,00
:52:CSM2CC2LXXX
```

This then needs to be able to be connected to the pacs.004 which will be send after a successful settlement. This is depicted below in an extract of this message:

```
<pacs.004.001.01>
  <GrpHdr>
    …
    <IntrBkSttlmDt>2008-01-03<IntBkSttlmDt>
    …
  </GrpHdr>
  <TxInf>
    …
    <RtrdIntrBkSttlmAmt Ccy="EUR">300</RtrdIntrBkSttlmAmt>
    …
    <RtrRsnInf>
      …

<AddtlRtrRsnInf>/STTLMREF/CSM2RECREF0001</AddtlRtrRsnInf>
    </RtrRsnInf>
    …
  </TxInf>
</pacs.004.001.01>
```

As a result the first CSM can now reconcile the receive pacs.004 with the received MT910 (forwarded by the liquidity bridge bank).

All the amounts of the settlements done with reference 'CSM2RECREF0001' from initiating CSM 'CSM2CC2LXXX' on Settlement Date '080103' need to be added up and need to match to the sum of the amount of all the transactions received in a pacs.004 from the Swift sender 'CSM2CC2L' with reference (in Additional Return Reason Information) 'CSM2RECREF0001' and settlement date '2008-01-03'.

In case the optional functionality of a pre settlement advice is used, the first CSM can firstly reconcile this pre settlement advice with the received Credit advice in the MT910. This way it can be ensured the predicted and intended amount ended up on the settlement account. This means that the amount in field 32A of the Credit advice should equal the amount specified in the pre settlement advice and that the related reference in field 21 of the Credit advice should match the end-to-end id specified in the pre settlement advice.

6.2 SEPA Direct Debit

SEPA Direct Debit consists of several flows, which can be reconciled. The Normal Direct Debit Flow, the Return/Refund Direct Debit Flow, the Reversal Direct Debit Flow. Each will be separately defined.

6.2.1 Normal Direct Debit

The specific part of the process where reconciliation is necessary is pictured below:
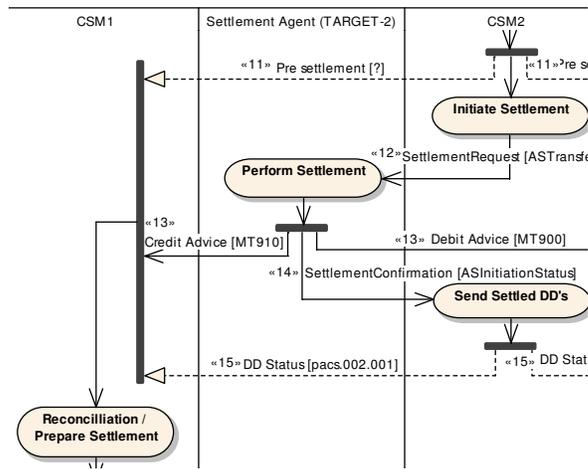
CSM 1 will normally have 2 (and a maximum of 3) incoming flows which were initiated by the CSM 2 for settlement and confirmation of the Direct Debits.

In the Settlement Request CSM 2 will put a specific settlement reference number and will of course specify the settlement amount. Leaving out the not relevant parts, this would result in a following example Settlement Request:

```
<pain.998.001.01>
  <PrtryDt>
    <Tp>ASTransferInitiation</Tp>
    <SspPrtryDt>
      <GrpHdr>
        …
        <InitgPty>
          <FI>
            <BIC>CSM2CC2LXXX</BIC>
          </FI>
        </InitgPty>
      </GrpHdr>
      <PmtInf>
        <ReqExctnDt>2009-11-06</ReqdExctnDt>
        <FrstAgt>
          <BIC>CSM2CC2LTEC</BIC>
        </FrstAgt>
        <PmtTx>
          <PmtId>
            <InstrId>ABC1234</InstrId>
            <EndToEndId>RECONREF001</EndToEndId>
          </PmtId>
          <Amt>
            <InstAmt>300.00</InstAmt>
          </Amt>
          <FnlAgt>
            <BIC>CSM1CC2LFID</BIC>
          </FnlAgt>
          …
        <PmtTx>
      <PmtInf>
      …
    </SspPrtryDt>
  </PrtryDt>
</pain.998.001.01>
```

In this case CSM1 makes use of the Fiduciary account.

If successfully executed the above stated part of the ASTransferInitiation will result in the following MT910 to the beneficiary in TARGET2. In this case it will be send to the Fiduciary BIC code of CSM1. This is under the assumption that CSM 1 has requested these optional MT910 messages to be send.

```
:20:AS02100240012345
:21:RECONREF001
:25:CSM1CC2LFID
:32A:091106EUR300,00
:52:CSM2CC2LXXX
```

This then needs to be able to be connected to the pacs.002 which will be send after a successful settlement in order to confirm the settlement of the original Direct Debits back to CSM 1. This is depicted below in an extract of this message:

```
<pacs.002.001.02>
  <GrpHdr>
    …
    …
  </GrpHdr>
  <OrgnlGrpInfAndSts>
    …
    <OrgnlMsgId>Identification of the original
pacs.003</OrgnlMsgId>
    <OrgnlMsgNmId>'pacs.003.001.01'</OrgnlMsgNmId>
    …
    <GrpSts>ACSC</GrpSts>(Can also be status 'PART')
    <StsRsnInf>
      …
      <AddtlStsRsnInf>/INTRBKSTTLMDT/2009-11-
06</AddtlStsRsnInf>

<AddtlStsRsnInf>/TTLINTRBKSTTLMAMT/EUR300</AddtlStsRsnInf>
      <AddtlStsRsnInf>/STTLMREF/RECONREF001</AddtlStsRsnInf>
    </StsRsnInf>
    …
  </OrgnlGrpInfAndSts>
  <TxInfAndSts>
    …
    <TxSts>ACSC</TxSts>
    …
    …
  </TxInfAndSts>
</pacs.002.001.02>
```

As a result CSM 1 can now reconcile the receive pacs.002 with the received MT910.

All the amounts of the settlements done with reference 'RECONREF001' from initiating CSM 'CSM2CC2LXXX' on Settlement Date '091106' need to be added up and need to match to the sum of the amount of all the transactions received in a pacs.002 from the Swift sender 'CSM2CC2L' with reference (in instruction for next agent field) 'RECONREF001' and settlement date '2009-11-06'.

In case the optional functionality of a pre settlement advice is used, CSM 1 can firstly reconcile this pre settlement advice with the received Credit advice in the MT910. This way it can be ensured the predicted and intended amount ended up on the settlement account. This means that the amount in field 32A of the Credit advice should equal the amount specified in the pre settlement advice and that the related reference in field 21 of the Credit advice should match the end-to-end id specified in the pre settlement advice.

6.2.2 Direct Debit Return/Refund

The flows for a Direct Debit Return/Refund are much like the flows of a normal Direct Debit, with the exception of the messages used, where the pacs.003 is replaced by the pacs.004. For reconciliation purposes however in both cases the pacs.002 is used, as the pacs.003 and pacs.004 need to be exchanged before settlement takes place. Looking at the previous Direct Debit example the resulting messages for the Return would be as follows:

In the Settlement Request CSM 1 will put a specific settlement reference number and will of course specify the settlement amount. Leaving out the not relevant parts, this would result in a following example Settlement Request:

```
<pain.998.001.01>
  <PrtryDt>
    <Tp>ASTransferInitiation</Tp>
    <SspPrtryDt>
      <GrpHdr>
        …
          <InitgPty>
            <FI>
              <BIC>CSM1CC2LXXX</BIC>
            </FI>
          </InitgPty>
      </GrpHdr>
      <PmtInf>
        <ReqExctnDt>2009-11-08</ReqdExctnDt>
        <FrstAgt>
          <BIC>CSM1CC2LTEC</BIC>
        </FrstAgt>
        <PmtTx>
          <PmtId>
            <InstrId>ABC1234</InstrId>
            <EndToEndId>CSM1RECREF0001</EndToEndId>
          </PmtId>
          <Amt>
            <InstAmt>300.00</InstAmt>
          </Amt>
          <FnlAgt>
            <BIC>BANKCC2LBRI</BIC>
          </FnlAgt>
          …
        <PmtTx>
      <PmtInf>
      …
    </SspPrtryDt>
  </PrtryDt>
</pain.998.001.01>
```

In this case CSM2 makes use of a liquidity bridge bank.

If successfully executed the above stated part of the ASTransferInitiation will result in the following MT910 to the beneficiary in TARGET2. In this case it will be send to the Liquidity Bridging bank BIC code of the Bridge bank of CSM2. This is under the assumption that this bank has requested these optional MT910 messages to be send.

```
:20:AS02100240012345
:21:CSM1RECREF0001
:25:BANKCC2LBRI
:32A:091108EUR300,00
:52:CSM1CC2LXXX
```

This then needs to be able to be connected to the pacs.002 which will be send after a successful settlement. This is depicted below in an extract of this message:

```
<pacs.002.001.02>
  <GrpHdr>
    …
    …
  </GrpHdr>
  <OrgnlGrpInfAndSts>
    …
    <OrgnlMsgId>Identification of the original
pacs.004</OrgnlMsgId>
    <OrgnlMsgNmId>'pacs.004.001.01'</OrgnlMsgNmId>
    …
    <GrpSts>ACSC</GrpSts>(Can also be status 'PART')
    <StsRsnInf>
      …
      <AddtlStsRsnInf>/INTRBKSTTLMDT/2009-11-
08</AddtlStsRsnInf>

<AddtlStsRsnInf>/TTLINTRBKSTTLMAMT/EUR300</AddtlStsRsnInf>

<AddtlStsRsnInf>/STTLMREF/CSM1RECREF0001</AddtlStsRsnInf>
    </StsRsnInf>
    …
  </OrgnlGrpInfAndSts>
  <TxInfAndSts>
    …
    <TxSts>ACSC</TxSts>
    …
    …
  </TxInfAndSts>
</pacs.002.001.02>
```

As a result CSM 2 can now reconcile the receive pacs.002 with the received MT910 (forwarded by the liquidity bridge bank).

All the amounts of the settlements done with reference 'CSM1RECREF0001' from initiating CSM 'CSM1CC2LXXX' on Settlement Date '091108' need to be added up and need to match to the sum of the amount of all the transactions received in a pacs.002 from the Swift sender 'CSM1CC2L' with reference (in Additional Return Reason Information) 'CSM1RECREF0001' and settlement date '2009-11-08'.

In case the optional functionality of a pre settlement advice is used, CSM 2 can firstly reconcile this pre settlement advice with the received Credit advice in the MT910. This way it can be ensured the predicted and intended amount ended up on the settlement account. This means that the amount in field 32A of the Credit advice should equal the amount specified in the pre settlement advice and that the related reference in field 21 of the Credit advice should match the end-to-end id specified in the pre settlement advice.

6.2.3   Direct Debit Reversal

The flows for a Direct Debit Reversal are much like the flows of a normal Credit Transfer, where the messages only need to be send to the other CSM after settlement has taken place.

In the Settlement Request CSM 1 will put a specific settlement reference number and will of course specify the settlement amount. Leaving out the not relevant parts, this would result in a following example Settlement Request:

```
<pain.998.001.01>
  <PrtryDt>
    <Tp>ASTransferInitiation</Tp>
    <SspPrtryDt>
      <GrpHdr>
        …
        <InitgPty>
          <FI>
            <BIC>CSM1CC2LXXX</BIC>
          </FI>
        </InitgPty>
      </GrpHdr>
      <PmtInf>
        <ReqExctnDt>2009-11-07</ReqdExctnDt>
        <FrstAgt>
          <BIC>CSM1CC2LTEC</BIC>
        </FrstAgt>
        <PmtTx>
          <PmtId>
            <InstrId>ABC1234</InstrId>
            <EndToEndId>CSM1RECREF0001</EndToEndId>
          </PmtId>
          <Amt>
            <InstAmt>300.00</InstAmt>
          </Amt>
          <FnlAgt>
            <BIC>BANKCC2LBRI</BIC>
          </FnlAgt>
          …
        <PmtTx>
      <PmtInf>
      …
    </SspPrtryDt>
  </PrtryDt>
</pain.998.001.01>
```

In this case CSM2 makes use of a liquidity bridge bank.

If successfully executed the above stated part of the ASTransferInitiation will result in the following MT910 to the beneficiary in TARGET2. In this case it will be send to the Liquidity Bridging bank BIC code of the Bridge bank of CSM2. This is under the assumption that this bank has requested these optional MT910 messages to be send.

```
:20:AS02100240012345
:21:CSM1RECREF0001
:25:BANKCC2LBRI
:32A:091107EUR300,00
:52:CSM1CC2LXXX
```

This then needs to be able to be connected to the pacs.007 which will be send after a successful settlement. This is depicted below in an extract of this message:

```
<pacs.007.001.01>
  <GrpHdr>
    …
    <TtlRvsdIntrBkSttlmAmt
Ccy="EUR">300</TtlRvsdIntrBkSttlmAmt>
    <IntrBkSttlmDt>2009-11-07</IntBkSttlmDt>
    …
  </GrpHdr>
  <OrgnlGrpInf>
    …
    <OrgnlMsgId>Identification of the original
pacs.003</OrgnlMsgId>
    <OrgnlMsgNmId>'pacs.003.001.01'</OrgnlMsgNmId>
    …
    <RvslRsnInf>
      …

<AddtlStsRsnInf>/STTLMREF/CSM1RECREF0001</AddtlStsRsnInf>
    </RvslRsnInf>
    …
  </OrgnlGrpInf>
  <TxInf>
    …
  </TxInf>
</pacs.007.001.01>
```

As a result CSM 2 can now reconcile the received pacs.007 with the received MT910 (forwarded by the liquidity bridge bank).

All the amounts of the settlements done with reference 'CSM1RECREF0001' from initiating CSM 'CSM1CC2LXXX' on Settlement Date '091108' need to be added up and need to match to the sum of the amount of all the transactions received in a pacs.007 from the Swift sender 'CSM1CC2L' with reference (in Additional Return Reason Information) 'CSM1RECREF0001' and settlement date '2009-11-08'.

In case the optional functionality of a pre settlement advice is used, CSM 2 can firstly reconcile this pre settlement advice with the received Credit advice in the MT910. This way it can be ensured the predicted and intended amount ended up on the settlement account. This means that the amount in field 32A of the Credit advice should equal the amount specified in the pre settlement advice and that the related reference in field 21 of the Credit advice should match the end-to-end id specified in the pre settlement advice.

7   Routing provisions

7.1   Routing provisions precondition for SEPA Interoperability

With the introduction of SEPA, 3 different typologies of routes for transactions are possible; these are described in the top half of the following diagram. The bottom half shows an example of the mix of routing options that will exist in the real life implementations of SEPA.
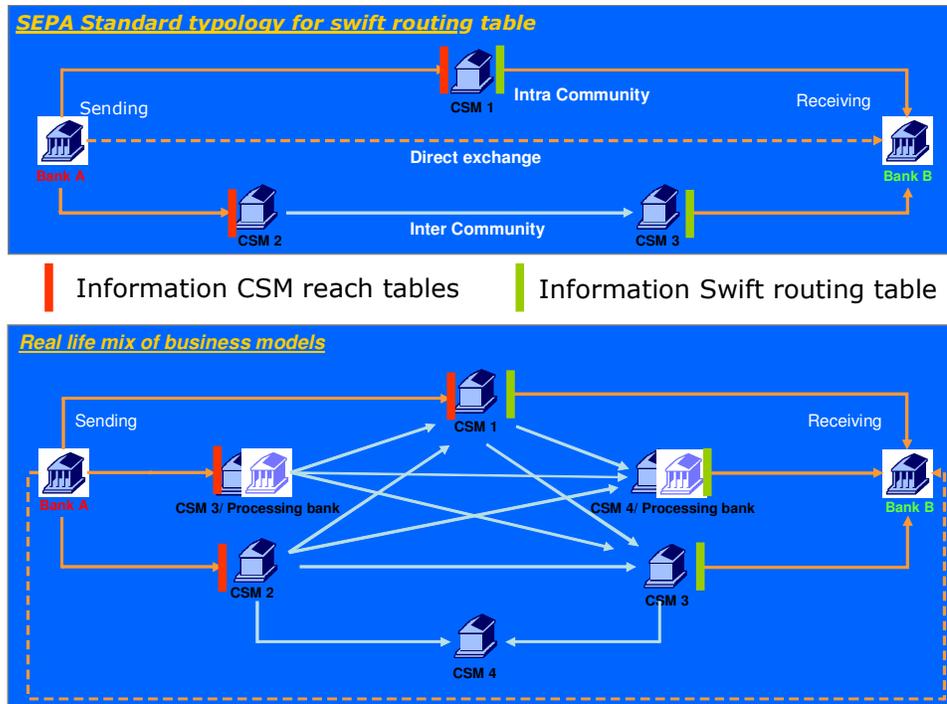
A payment service provider needs at least one CSM to be able to remit to and receive payments from payment service providers it does not enjoy bilateral arrangements with. The CSM framework states that each Scheme Participant shall ensure that it establishes access to a sufficient number of CSMs so as to create the required options for making and receiving payments and thereby creating reachability.

CSMs can choose to cooperate with one or more CSM's as to facilitate routing of payments to the receiver payment service provider's reachability point if outside their own community. CSMs can have other CSMs to act as a Reachability point for them.

As a consequence of both participants' choices and CSM choices it will be often possible in the SEPA for a remitting payment service provider to reach receiving payment service providers through multiple routes. To enable remitters and receivers to find each other with the opportunity to optimise the actual routing of messages "routing provisions" have to be made.

The routing provisions are part of interoperability catering for efficient and competitive payments processing, it is not in itself meant to provide full reach to all for it does not cater for the contractual arrangements needed to exchange payments between agents in the value chain.

7.1.1 Two purposes, two tables

Payment service providers will have to provide the appropriate information as to make known to the market in general how it wants to be reached (perspective of receiving payments service providers). The **reachability directory** (e.g. the SWIFT SEPA routing database) is extended to contain all the necessary and up to date information where (at which CSM) a payment service provider can be reached containing the product, technical and business attributes needed for routing purposes. The reachability directory should contain reachability information from all SEPA compliant payment service providers. This data has to be made available to all market participants. The reachability table reflects the reachability end point information of a payments service provider or CSM.

A remitting payment service provider has to know the reach available via the CSM(s) it has contractual relations with (perspective of payments service providers). Clearing payments presupposes knowing which payments service providers are reachable through which CSM. A CSM will publish a **CSM reach table** with a list of payments service providers and the reachability related business and technical attributes including cut-off times within its reach (direct and if applicable indirect via inter CSM reachability arrangements with other CSM's). The remainder of this document will focus on the CSM reach table.

The advantages of segregating the two purposes over two tables:

1. The tables will be maintained by the parties directly influenced by the table content (receiver for reachability information, CSM's for CSM tables serving their own community)

2. The remitting payment service provider can optimise the routing of its payments, while the receiving payment service provider can optimise, independently of the remitters routing, their reachability point of preference.

3. The reachability table remains part of the technical level, the CSM table is part of the business level.

7.2 Standard XML CSM reach table according to EACHA guidelines

According to the CSM framework a Scheme Participant selecting a CSM must establish that the receiving Scheme Participant is addressable (directly or indirectly) through that mechanism. CSMs will have to provide a list of all payment service providers that they can reach to participating payments service providers. In order to fulfil their obligations, CSMs that interoperate with other CSMs will have to exchange this information with each other as well.

Harmonisation of the table structure benefits CSMs as they will not have to implement different solutions with each partner CSM for determining routing information.

The CSM reach table structure and CSM table (XML formatted) message should be standardised via ISO 20022 methodology and be incorporated in the UNIFI message set. In the meantime, EACHA will use interim standards.

The data will cover all payment service providers reachable by the CSM and the relevant technical and business attributes specified below.

7.2.1   Managing the CSM reach table

Each CSM will maintain its own CSM table for the SEPA CT and DD compliant payment service providers it can reach direct and if applicable indirectly via inter CSM arrangements.

Each CSM holds the complete reach table of the participants he has an agreement with and holds the "shared data" of all the participants that are customer of those CSMs he has an agreement with.

7.2.2   Exchanging the CSM reach table

Each CSM remits the information and related updates on its own connected payment service providers to all the other CSM with which it has an interoperability agreement.

While the structure to do this with is standard, any CSMs using the standard would agree bilaterally whether to provide other CSMs with the full content of their reach tables or only a specific set of BICS to which they will be giving reach to the other CSM.

The CSMs exchange updates to their own reach tables pertaining to their customers (creation, cancellation, variation). (see paragraph 7.4.1 for distribution frequency policy)

Each CSM has to be able to supply, on request of a counterparty CSM, a full and up-to-date version of its CSM reach table, including all route entries that have a start date in the future.

CSM1 will not echo to CSM2 the reach provided by CSM2 to prevent payments potentially starting endless feedback loops in case synchronisation of reach between the two CSM accidentally is not aligned.

The CSM reach table updates will be exchanged on the basis of common agreed standards. Participating CSMs may extend the functionality of the updates on a bilateral basis.

The CSM reach table updates will be exchanged by means of a File Transfer System bilaterally agreed between the parties.

In order to simplify the CSM reach table updating process the exchanged physical file should contain all the updates pertaining the periodic cycle of updating.

The main CSM-ID in each entry (if provided) should be the CSM-ID of the CSM remitting the information. This enables the receiving CSMs to easily integrate the contents of the CSM reach tables it receives in their own CSM reach table, because it makes the reach information in each entry completely self-contained. This format can be used irrespective of whether the two parties are two CSMs, two payment service providers, or one of each.

7.2.3   Validity dates

Due to the length of processing periods for payments made under the SEPA schemes, (maximum 3 days for the CT and 14 days for the DD), routing table updates could occur while a payment is being processed. A participant remitting a payment should properly set and route it considering the settlement date of the payment and the CSM table information valid at the moment of the settlement date: **Validity date in the CSM table = Exchange date.** The first Exchange date is the day from which the sending and receiving of collections will start. The implication is that the CSM table should manage the "current" valid information as well as the "future" valid information.

The R-message should be routed depending on the CSM table valid at the moment of the original settlement date unless it is no longer possible for the remitter participant to remit the message through the original path. Routes for which a CSM does not accept new collections anymore should remain available until the Refund period (8 weeks + 2 TD) has passed.

7.3 Applications of the reach table messages

This paragraph describes the intended uses of the EACHA reach table messages, including the principles of the self organising routing mechanism between CSMs.

Three different uses of the same message structure are described, including the differences between how the tables can be filled depending on which usage it is intended for.

7.3.1 Different uses of the routing table

The different uses of the table are explained using a standard example configuration. In this diagram, CSM1 is the CSM the examples are explained for. CSM1 has two payments service providers that are connected directly, Payments service provider1 and Payments service provider2. This CSM is connected to two other CSMs, CMS2 and CSM3. CSM2 has two directly connected payments service providers, which are Payments service provider3 and Payments service provider4.
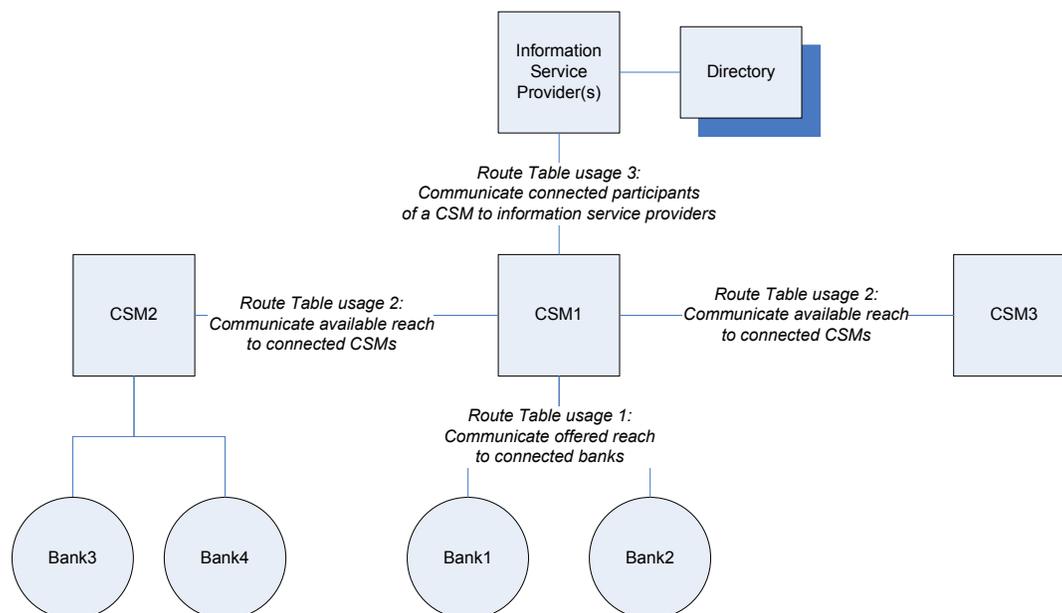
The routing table as defined in this document has 3 different purposes:

1 communicating a CSMs complete reach to its customers (payments service providers)

2 communicating reach between CSMs to establish possible routes for transactions

3 communicating the direct reach of a CSM to information service providers for incorporation in a directory

In all 3 cases, the definition (structure) of the table is the same, the content (the actual entries and their data elements) may be (and probably usually will be) different. PrivateData, as defined in the

table, is always intended for internal use by the CSM and is never sent out in the table for usage 1, 2 or 3.

For each of the different uses, a brief description of the usage and the consequences for the content of the routing table is given in the next sections.

7.3.2 Usage 1: communicating reach to customers

When communicating its reach to its (sending) customers, a CSM will create a table according to the standard format. The contents of this table will be made up of entries for all participants the CSM can offer reach to, both directly and indirectly, including reach through for example another CSM. It is up to the CSM how many entries are given for the same participant. If the CSM has two different routes to a participant, with for example different supported AOSs and cut-off times, the CSM can choose to send these options as separate entries to its customer, or send the customer a consolidated version, showing a combined set of AOSs and one cutoff time for a certain participant. The amount of information the customer needs, depends on who decides upon the routing to be used for a transaction, the CSM or the sending payments service provider itself. Therefore, the CSM needs to dynamically generate these tables for its customers, based on its internal routing database.

In case the CSM chooses to use a reach table for distributing reach information to its participants it is advised to put measures in place to prevent payments potentially starting endless feedback loops in case synchronisation of reach between CSM and (indirect) participants accidentally is not aligned. This can be achieved by either (1) not echoing the participants reach entries (including the indirect participants) or (2) to put in place a payments entry check to stop an occurring loop of payments.

7.3.3 Usage 2: communicating available reach to connected CSMs

Every CSM that is interlinked with another CSM using EACHA standards will communicate the reach it offers to its connected CSMs using the ReachTable format defined in this document.

CSM will normally fill this table with at least their own connected participants. It is every CSM's choice (possibly depending on its contracts with its linked CSMs) what indirect reach (that is, participants that can be reached through another CSM) it wants to offer to every CSM.

In the example diagram, CSM1 must decide wether or not it can offer reach to payments service providers 3 and 4 (reachable through CSM2, with which it is linked) to CSM3. Depending on this decision, the reach to the indirectly reachable payments service providers is added to the ReachTable it sends to CSM3, or it is left out of the table. This also means that the reach table that is sent to the connected CSMs can be different for every CSM. This self-organising mechanism between CSMs is described in more detail in the next chapter.

By combining its own connected participants, the received ReachTables and its reach through other channels (e.g. CSMs that do not adhere to EACHA standards for interoperability), a CSM can build an internal table with the reach it has to offer to customers.

7.3.4 Usage 3: communicating connected participants to information service providers

Once interoperable links between CSMs have developed sufficiently, it may become useful to create a "reachability directory" to take advantage of the multiple routes available to CSMs and payments service providers for routing payments. Analogous to the reach table documenting which payments

service providers are reachable via a given CSM, the reachability directory would document the reachability end point information available for reaching a given payments service provider.

The nature of the information held in such a reachability directory may overlap partially with the information held in the BIC/IBAN directory from information service providers such as SWIFT. Extending the BIC/IBAN directory may therefore to be practical for the purpose of creating general routing provisions.

To allow information service providers to maintain a central directory of participants, and the CSMs they are connected to, CSMs will send only their own connected participants in a ReachTable. The information that will be provided in the standard table format will be the minimum information that is needed to convey where participants can be reached. No information on inter-CSM routing, cost or quality of service (QoS) will be provided for this purpose.

NB1 It is up to the individual CSM, based on the arrangements made with their community of payments service providers to provide the information to SWIFT and/or other information service providers

NB2 The reachability directory is not essential for the CSMs to realise interoperability, but it does explain to payments service providers and CSMs what routes are available to them and the preferences that a receiving payments service provider might have.

7.3.5 Self Organising Routing Mechanism for interlinked CSM's

A working routing mechanism that operates by self-organisation (there is no central coordination or centrally managed directory, every CSM determines its reach and possible routes by combining all received routing tables from other CMSs into a consolidated internal table with its own participants) needs to have strictly defined messages (where not only the type but also the meaning of the data elements has to be strictly defined) and well-defined algorithms for working with this table. When these two definitions are established and implemented by everyone, every CSM can be sure that the routing tables it receives from other CSMs have a specified meaning, and are derived in the same way.

The self-organising mechanism works on the basis of ReachTables being sent between CSM's. By combining these tables, every CSM knows what inter-CSM reach it has to participants of other CSMs (and through which CSM).

By combining this with its own connected participants, and the reach it has through other channels (e.g. CSMs that do not adhere to EACHA standards), a CSM has a complete list available of the routes it has to all reachable participants.

7.4 Shared CSM practices in reach table usage

The CSMs currently using the EACHA routing table for life purposes have experienced that effectively exchanging routing information depends on shared practices:

– Common business practices to allow for simultaneous (de)-activation

– Common use of Bic8/11/XXX references

7.4.1   Common business practices to allow for simultaneous (de)-activation

As long as CSM2 has not activated the reach table changes received from CSM1, the participants from CSM1 that are added and are part of the changes cannot send to CSM2: non-simultaneous activation will lead to Returned Payments for them. In case CSM 1 adds reach the participants of CSM 2 are not able to use the CSM 2 to reach them until activation for these destinations. In case changes are made in the reach table relating to existing participants (e.g. cut-off time information) this could also lead to rejected/returned payments or payments delivered after the originally guaranteed delivery date.

The activation or deactivation of a participant in CSM1 will have to be synchronised for the use of inter CSM with the activation/deactivation of the reach at CSM2 and CSM2 participants. If a CSM is adding, changing or deleting reach entries in its (Direct Community) CSM Reach Table the changes have to be communicated to the CSMs it has an Inter CSM Relationship with to have simultaneous activation of the changes in their systems.

The experience with the ad hoc exchange of routing information based on bilateral practices in operational Inter CSM agreements proved to be the weakest link in arranging simultaneous activation emphasising the need for an orchestrated approach among the EACHA CSMs.

With banks starting to choose to be linked to multiple and or other CSMs the Reach Tables of individual CSMs are starting to change with increasing frequency. With the extension of operational inter CSM links between EACHA CSMs increasing dynamics in respect to exchanging Reach Table is expected resulting in increasingly frequent updates of the client reach table used by financial institutions to determine availability and conditions of an other financial institution via the respective CSM.

An orchestrated exchange of Reach Tables between CSMs is necessary as to provide a Market Wide Practice to ensure simultaneous activation, changing and deleting of Reachable BICs throughout EACHA CSMs. Harmonisation of Distribution Frequency based on a weekly rhythm and daily order of exchanging the Reach Tables amongst each other is necessary to be able to have simultaneous activation of BICS through out SEPA.

We need further Standardisation on the Reach Table Exchanges to make Inter CSM Reach work in an ever increasingly dynamic SEPA Payments Network. The need for simultaneous activation asks for structural business practices. Ideally the practices in place would allow for the automated processing of Reach Tables.

Distribution of Reach Tables Policy

In creating a new Client Reach Table containing Inter CSM Reach a CSM only needs timely input from other CSMs, no further iteration between them is required. (A CSM can create their (Intra) CSM Reach Table independently from other CSMs. As a consequence, if a CSM receives the CSM Reach Table of others in time, it can then successfully process the Reach Tables and distribute them to its Clients. A CSM itself needs time to process the Reach and create new Tables for its Clients and distribute these to them.

The two CSMs acting in an Inter CSM relationship are regarded to be both in the role of CSM1 and in CSM2; hence the combination of frequencies should work in both directions; this limits the possible frequency combinations.

It is not an option to differentiate Reach for monthly rhythm by setting only "valid from" activation dates respecting monthly activation:

  − A new Bank in CSM1 will have different Reach than an existing Bank towards CSM2. This would imply individual Reach Tables per Client.

  − A deleted Bank in CSM1 will still be in the Reach List of CSM2; Clients of CSM2 will send Payments that subsequently will be rejected.

Parties that are used to a monthly rhythm will have to introduce either an ad hoc process reacting within the given weekly process or adopt a weekly process to activate Reach in their system.
Six elements are catering for simultaneous activation through a Payments Chain

1. The use of EACHA CSM Reach Tables as described in the Eacha Framework; Exchange of full table i.e. incorporating all reach entries. In time when the Distribution Sequence and the ability of Processors to process the Reach Tables automatically we will start using Tables that only show changes as to the previous version. At present the full Tables are used.
2. In the Reach Table a "valid from" and "valid until" fields basically provide for date synchronisation;
3. CSMs use a "(earliest) next Monday activation" principle; activation of added, changed or deleted Reach Entries will be dated on the first Working Day of a calendar week at opening of Business.
4. Based on a weekly frequency CSMs have to orderly exchange Reach amongst each other at a moment that allows them to create new Reach Tables and distribute these to clients in time; if a CSM chooses to adopt ad hoc distribution ("upon need"), it, in the role of CSM2, will have to send new Client Reach Table upon receiving changes from other CSM(s) to its Clients and to activate the indicated changes to be available the next Monday. (NB With the increasing dynamics of the Reach Table ad hoc will tend to a weekly rhythm at some point.)
5. A Cut-off Time to exchange new Reaches between CSMs as to allow the receiving CSM2 to activate and inform the Clients in a timely manner; CSM2 receiving the reach table from CSM1 will have to introduce the new reach table in its systems to enable it to accept incoming payments from CSM1 and to inform its participants.
6. The Activation Date is set by the CSM1. The Activation Date has to be preserved by CSM2 regardless of the length of the Payments Chain it guarantees to CSM1. NB If a CSM activates a new participant for intra CSM payments with a shorter time-lapse between publication and activation (before inter CSM activation has been established) it has to make sure the new participant has adequate reach table information on the availability of inter CSM reach for this particular participant.

Weekly Timeline

Monday (week 0)

  1. (PA Client CSMs to CSM1) Processing Agreement Client CSMs are to send a new CSM Reach Table to CSM 1 before CET 12:00 noon.

Tuesday (week 0)

  2. (CSM to CSM) CSMs are to send each other a new CSM Reach Table before CET 12:00 noon to come into effect directly after the following weekend at the first Working Day of the next calendar week at opening of Business.
  3. (CSM to CSM) If a CSM Reach Table is sent after the 12:00 (noon) Cut-off Time on Tuesday the present Table will remain applicable. Occurring disputes can be solved until 16:00; fall back is to roll back to present version Reach Table.
  4. (CSM to Client/Participant) Each CSM can start sending their Client Reach Table to their Community as from Tuesday CET 16:00 hours (or any earlier moment when all Reach has been processed successfully without outstanding disputes) to come into effect the first Working Day of the next calendar week at opening of Business with the Clients. (This allows the Tuesday afternoon to sort out sending errors, reject of Tables or Table Entries)

Wednesday (week 0)

1. Entry only to PA: (CSM1 to PA Client CSMs) CSM1 will send a Client Reach Table including all applicable Reach to Processing Agreement Client CSMs at the latest at Wednesday CET 12:00 noon; with the intention to send on Tuesday afternoon pending outstanding disputes. (NB1 CSM Reach Table send on Tuesday by CSM1 can be discarded.

Monday i.e. first Working Day of calendar (week 1)

New Reach activated

CSM to CSM Processing Agreements

If CSM2 has a Bilateral Arrangement with CSM3 (i.e. CSM3 becomes a Participant of CSM2) to create Reach to CSM1 the bilaterally agreed time between CSM1 and CSM2 dictates the total Timeline to have the Reach Table Changes activated at CSM3. In this situation it is the responsibility of CSM2 to create Bilateral Agreements with CSM3 that honour the agreed pre-warning times between CSM1 and CSM2. The activation or deactivation of a Participant in CSM1 will have to be synchronised for the use of Inter CSM with the activation/deactivation of the Reach at CSM2 and CSM2 Participants.

The Reach Table provided to a CSM that has a Processing Agreement is a Client Reach Table. Distribution is set conform the Bank-Client distribution order chosen bilaterally.

7.4.2   Common use of Bic8/11/XXX references
For clarity on the use of BIC8 and BIC11 codes in the reach tables we use the following:

– A CSM1 has to positively identify actual reach via individual bic11 entries in the reach table; the reach table will contain the BIC's of all reachable branches via the CSM.

– The EACHA CSM reach table will not make use of truncation i.e. multiple branch codes will not be clustered under a BIC8.

– BIC8 and BIC8++'XXX' are synonymous; e.g., RABONL2U and RABONL2UXXX both signify the main branch of Rabobank. This conforms to the SWIFT guidelines. (NB)

7.5   Routing of SDD
One of the crucial compliancy directives in SEPA is on timely execution of payments. Timely in the sense that the EPC rulebooks impose clear timelines on payments and R-messages that have to be obeyed. At the same time multiple and varying parties can take part in the exchange of payments between an originating bank and a beneficiary bank while for a specific payment the chain of parties has to be respected for all consequent payment messages. The EPC rulebooks do not provide for sufficient provisions in a networked environment. The ability to process payments and R-messages in a SEPA compliant timely manner therefore is a cornerstone of the interoperability framework as designed by EACHA.

To allow for timely exchanges of payments and related R-messages in SCT it is sufficient for CSMs to publish a reach table to banks and each other ex ante indicating the ultimate cut-off time for a given beneficiary bank when a bank or other CSM wants to pass the payment via this CSM.

The SDD imposes new challenges to a multiparty payments chain if it wants to uphold the timelines and maintain payments channels.

For SDD it is not sufficient to know the (final) cut-off time of the other CSM. The money flow of the SDD-transaction is opposite to the direction of the data flow of the original DD collection message, and that the route cannot change.

7.5.1 Fitting in the EACHA (SDD) model and interoperability objectives

The routing algorithm has to be based on:

- Adequate distribution of cut-off time information for all SDD messages

- Observing EPC rulebook compliances.

- Party and payments chain independent solution,

- SEPA wide solution to allow for inter CSM exchanges

7.5.2 Intra-day settlement

One of the main principles for routing in EACHA has always been to prevent overnight positions for any of the CSM's in the chain (intra-day settlement). For enhancing the EACHA SDD routing algorithm this is taken again as a starting point.

7.5.3 No enforcement of a particular way of processing

Another requirement to the algorithm is that it should not restrict in any way the processing of a CSM. Neither should it impose a certain way of processing.

To reduce dependencies the amount of information exchanged should be kept as low as possible.

7.5.4 No, or minimal, obligation for software changes

The proposed algorithm should require minimal software changes if any, whilst implementing the solution within a CSM.

7.5.5 SDD specific

The processing of a regular SDD takes place on two different moments in time (R-transactions will be discussed in section 0): the day the collection is forwarded towards the debtor bank, and settlement day.

The figure below shows the additionally needed information. This will be explained in the next sections.
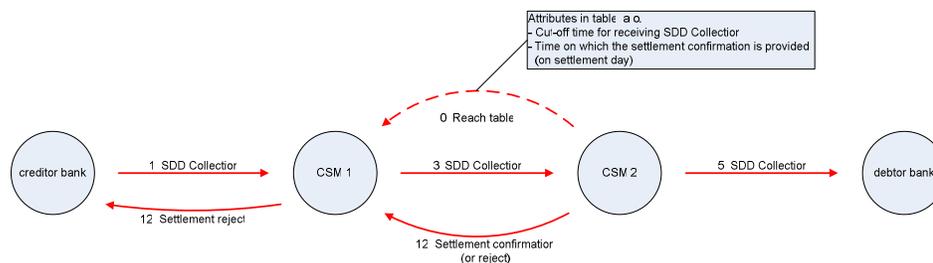
Figure 1 EACHA SDD flow with additionally needed information.

Cut-off time for forwarding the collection

The information needed for timely forwarding the collection is the cut-off time to ensure that the debtor bank receives the SDD collection ultimately by the rulebook specified time (on D-5 for a first/one-off and D-2 for a recurrent). This cut-off time indicates the time that the collection needs to be received by CSM 2 to ensure same-day (assuming the Number of relative days is 0) delivery to the debtor bank. This is similar to the cut-off time for SCT's that is captured in the reach tables (arrow #0 in Figure 1)[1].

Processing on settlement day

To ensure same-day settlement on settlement day, additional information is needed. The difficulty is that, once the route is chosen on the forwarding date, it is fixed also for settlement day (and for the route that possible R-transactions need to take). It becomes even a bit more complex because the direction of the messages on settlement day is reversed. So, in order to check whether same day settlement can be achieved the restrictions of the reversed route need to be known.

Time on which the settlement confirmation is provided

To determine whether same day settlement is feasible, CSM 1 needs to know in advance at what time CSM 2 is able to deliver the settlement confirmation on the settlement day.

In the reach table (arrow #0 in Figure 1) CSM 2 can indicate what its settlement confirmation time is, at which it is able to guarantee to deliver the settlement confirmation in a normal settlement cycle.

Responsibilities of the CSM's

Like in SCT, where the CSM that sends out its reach table has the responsibility to deliver a payment to the creditor bank same day if it has received the payment before its indicated cut-off time, CSM 2 is responsible for forwarding the collection to the debtor bank same day if the collection was received before the indicated cut-off time.

In addition, CSM 1 is responsible for choosing a route that works. I.e.: the settlement confirmation time needs to be early enough to facilitate same day settlement. And, finally, CSM 2 is responsible for delivering the settlement information before or on the indicated settlement confirmation time.

R-transactions

> Rejects (/Refusals)
> Since CSM 1 is only able to start settlement after having received the settlement confirmation from CSM 2, there is no 'hard' cut-off time for sending rejects. However, it would be good practice to send rejects before the settlement confirmation time.

---

[1] Cf. the use of the reach table in SCT, but note that since forwarding the collection does not include any form of settlement, it should be possible to have later cut-off times.

Request for cancellation

For sending a Request for cancellation, there is no cut-off time. Instead, the processing is done a best effort basis and the success will be indicated by either a confirmation of processing the request, or a reject.

Return and Refund

The CSM's in the return path will make a best effort in clearing and settlement of the Return or Refund as soon as possible in order to try and achieve same day settlement throughout the payment chain.

For the Return and Refund the CSM is obliged to make every reasonable effort to keep the route for processing of returns open for at least the 8 week (+2 TARGET-days) period specified as the standard return period.

Reversal and Return of Reversal

The CSM's in the Reversal and Return of Reversal path will make a best effort in clearing and settlement of the transactions as soon as possible in order to try and achieve same day settlement throughout the payment chain.

7.6   Definition of Reach Tables

7.6.1   Logical structure of the CSM reach table

The "physical file" is the file physically sent to the counterparty over the network and file can contain one or more logical files. The data will be formatted in a "logical file" composed by:

– one header record

– one or more detail records containing the single evidence of updates

Logical files are homogenous per scheme- product (e.g. in one logical file the CT updates, in one other the DD updates) and can contain creation, cancellation and variations.

Data	Description	Format	Shared data	Notes
Participant code	Identification of payment service provider that can be reached	BIC code	Y	
Participant name			Y	
Participant address			Y	
Scheme Product	Specific product for which this entry is applicable		Y	
Scheme Product version	Version of the scheme supported		Y	Can be multiple
CSMid	Identification of the CSM providing the remitting option for this reach	Bic code (?)	Y	
Preferred CSM indicator	It indicates if the CSM is the preferred CSM at the receiving side		Y	

Start date	starting validity date from which the information is considered valid		Y	
End date	Last date the information is still considered valid		Y	Can be empty
AOS	Additional optional services supported		Y	
Cut-off time	Time at which the latest payments for this destination BIC can be remitted			
PriceIndicator	Price or price mark-up for this destination BIC	Currency + Amount	Y	optional

7.6.2 Message definition CSM reach Table (ROCS.001.001.004)

For every data element in the routing table message, the following is defined:

Indx	numbering of the element for reference purposes
Mult	the multiplicity of the element, i.e. how often can it occur within its parent element
ISO	Y if is this an element already defined in the ISO20022 repository, N otherwise
Explanation	describes the business meaning of the data element, but sometimes also contains usage rules for the element.

Index	Mult	Element	ISO	Explanation
1.0	[1..1]	+GrpHdr	N	Header Type : GroupHeader
1.1	[1..1]	++MsgId	Y	*Usage rule : contain a unique identification for the message from the sender* Type : Max35Text
1.2	[1..1]	++CreDtTm	Y	Creation Date & Time for this file Type : ISODateTime
1.3	[1..1]	++PtyId	Y	This identifies the party (CSM) sending the table, providing reach. Type : PartyIdentification1Choice

1.3.1	{Or [1..1]	+++BICOrBEI	Y	BIC for CSM Type : AnyBICIdentifier (See ISO for definition of subelements)
1.3.2	Or [1..1]	+++ PrtryId	Y	Proprietary ID of CSM Type : GenericIdentification1 (See ISO for definition of subelements)
1.3.3	Or [1..1] }	+++ NmAndAdr	Y	Name and Address of CSM Type : NameAndAddress2 *Usage rule : Not to be used* (See ISO for definition of subelements)
1.4	[1..1]	++FullTable	N	1 (for true) to indicate if a full table is being provided or 0 (for false) to indicate if a table update is being provided. Type: xs:boolean
2.0	[1..n]	+RchEntry	N	A ReachEntry is present for every participant that can be reached through this CSM. Multiple occurances of one participant are allowed, but then the validity period must no overlap. Type : ReachEntry
2.1	[1..1]	++Status	N	Status of this reach entry. *Usage rule : only 'existing' 'new' or 'changed' or 'deleted' is allowed.* *For full table, only 'existing' is allowed.* Type : Max16Text
2.2	[1..1]	++Validity	N	Period of validity of this reach entry. Type : DateTimePeriod

2.2.1	[1..1]	+++FrDtTm	Y	Valid from: date & time Default from start of day (00:00:00 CET) Type: ISODateTime
2.2.2	[0..1]	+++ToDtTm	Y	Valid to : date & time Default until end of day (23:59:59 CET) Type: ISODateTime
2.3	[1..1]	++Participant	N	The identification of the participant of this ReachEntry. This is a final destination for transactions, for CT this is the Creditor Agent. Type : FinancialInstitutionIdentification
2.3.1	[1..1]	+++BIC	Y	Type : AnyBICIdentifier
2.3.2	[1..1]	+++NmAndAdr	Y	Type : NameAndAddress2 (See ISO for definition of subelements)
2.4	[1..1]	++Product	N	Type : ProductIdentifier
2.4.1	[1..1]	+++ProductName	N	*Usage rule : only 'SCT', 'SDD core', 'SDD b2b' is allowed* Type : Max16Text
2.4.2	[1..1]	+++Vrsn	Y	Version of Rulebook of the product that is supported Type : xs:decimal
2.5	[0..1]	++CSM	N	Identifies the CSM that provides this reach *Usage rule : Repeat CSM info from <GrpHdr>* Type : CSMIdentifier
2.5.1	[1..1]	+++PtyId	Y	Type : PartyIdentification1Choice
2.5.1.1	{Or [1..1]	++++BICOrBEI	Y	BIC for CSM Type : AnyBICIdentifier

2.5.1.2	Or [1..1]	++++PrtryId	Y	Proprietary ID of CSM Type : GenericIdentification1 (See ISO for definition of elements)
2.5.1.3	Or [1..1] }	++++NmAndAdr	Y	Name and Address of CSM Type : NameAndAddress2 *Usage rule : Not to be used* (See ISO for definition of elements)
2.5.2	[1..1]	+++PreferredIndicator	N	Contains 1= true or 0= false Indicates if this CSM offers a route to the preferred CSM at the receiving side. Type : xs:boolean
2.6	[1..1]	++CutOff	N	Type : CutOffType
2.6.1	[1..1]	+++Time	N	For SCT: the latest time at which payments for this destination BIC can be remitted For SDD: the latest time at which collections for this destination BIC can be remitted Type : ISOTime
2.6.2	[1..1]	+++RelDays	N	Number of days relative to exchange day (>=0) Type : xs:nonNegativeInteger
2.6.3	[1..1]	+++TimeZone	N	*Usage rule : Must always be 'CET'* Type : Max16Text
2.7	[0..1]	++SettlmConfirm	N	Type: SettlementConfirmation
2.7.1	[1..1]	+++GuaranteedTime	N	Field only for SDD Time that the CSM will deliver the Settlement Confirmation Type : ISOTime

2.7.2	[1..1]	+++DaysDelay	N	Number of days relative to Due Date Type : xs:nonNegativeInteger
2.7.3	[1..1]	+++TimeZone	N	*Usage rule : Must always be 'CET'* Type : Max16Text
2.8	[0..1]	++SupportedAos	N	A list of (to be determined) Additional Optional Services supported by (this route to) the participant. Type : AosList
2.8.1	[1..n]	+++AOSId	N	Identifies an AOS. Requires unique IDs for AOSs, at least within the CSM. Type : xs:decimal
2.9	[0..1]	++PriceIndicator	N	Indicates a price or price markup on the reach to this destination. Type : PriceIndication
2.9.1	{Or [1..1]	+++Amount	Y	Amount per transaction Type: CurrencyAndAmount
2.9.2	Or [1..1] }	+++Indication	Y	*Usage rule: not to be used* Type: Max35Text

7.6.3 List of changes

The following major changes were incorporated in the Reach Table format rocs .001.001.03 compared to version 1.0:

- 1.9 Type changed to Boolean;
- 2.1 Only 'Existing' allowed for a full table;
- 2.3 Default time added;
- 2.4 Default time added;
- 2.7 Typing error in element nesting depth corrected;
- 2.8 Clarified referral to ISO standard;
- 2.16 Textual upgrade to allowed text values;
- 2.17 Typing error in element type corrected;
- 2.18 Usage rule added;
- 2.23 Usage rule added;
- 2.26 Type changed to Boolean;
- 2.27 Explanatory text deleted, multiplicity updated;
- 2.28 Explanatory text added, multiplicity updated;

2.30 Type changed to non negative integer, multiplicity updated;
2.31 text addition;
2.32 Typing error in element type corrected;
2.33 Element added.

The following changes were incorporated in the Reach Table format when moving from description rocs.001.001.03 to rocs.001.001.04:

- Changed the numbering in the description table
- The type is PartyIdentification1Choice and not PartyIdentificationChoice1;
- The tag name is FrDtTm replacing FromDtTm;
- In previous document the tag name was NmAndAddr which was wrong and should be NmAndAdr;
- The type is PartyIdentification1Choice and not PartyIdentificationChoice1 as in the previous description;
- We added the tag TimeZone to ensure clear time definition;
- This tag was on the wrong level in the previous description; AOS in AOSList must be in capitals;
- Change type to PriceIndication in the description;
- Added the tag Amount to the description. This was already in the XSD;
- Added the tag Indication to the description.
-

Field	Rocs.001.001.03	Rocs.001.001.03HH	Rocs.001.001.04
GrpHdr	No differences	No differences	No differences

RchEntry / Validity	DateTimePeriodDetails
	    FromDtTm
		DateTimePeriodDetails
		    FrDtTm
			DateTimePeriod
			    FrDtTm

RchEntry / Participant FinancialInstitutionIdentification	NmAndAddr	NmAndAdr	NmAndAdr
RchEntry / Product	Product	Prdct	Product
RchEntry / CSM	Optional field CSM	Mandatory field CSM	Optional field CSM

RchEntry / CutOff	CutOff
	    Time
	    RelDays
		Cutoff
		    RelativeDays
		    CutOffTime
			CutOff
			    Time
			    RelDays
			    TimeZone

RchEntry / SupportedAOS	SupportedAosList	SupportedAOS	SupportedAOS

RchEntry / PriceIndicator	PriceIndication
	    Amount
	
	    CurrencyAndAmount
	    Indication
		CurrencyAndAmount	PriceIndication
			    Amount
			
			    CurrencyAndAmount
			    Indication

Changes specific for SDD:

- Added a description for the cut-off for SDD.
- Added the field SettlmConfirm and its subfields

The following fields have been added to rocs.001.001.04

2.7	[0..1]	++SettlmConfirm	N	Type: SettlementConfirmation
2.7.1	[1..1]	+++GuaranteedTime	N	Field only for SDD Time that the CSM will deliver the Settlement Confirmation Type : ISOTime
2.7.2	[1..1]	+++DaysDelay	N	Number of days relative to Due Date Type : xs:nonNegativeInteger
2.7.3	[1..1]	+++TimeZone	N	*Usage rule : Must always be 'CET'* Type : Max16Text

8   Bulking Mechanism

EACHA recognises that several different bulking mechanisms are being developed or have been developed. As part of technical interoperability EACHA also recognises that if a bulking mechanism is to be used, it should be part of the interoperability framework. Otherwise there may still be a considerable effort needed for connecting to a CSM or switching to another CSM. The current message specifications do not make use of a bulking mechanism, but instead single XML-messages are expected to be exchanged per file.

As part of the ongoing development of the EACHA framework, in the future EACHA will be looking into the possibilities of a bulking mechanism and the different (standardised) solutions available.