



EUROPEAN CENTRAL BANK



TARGET

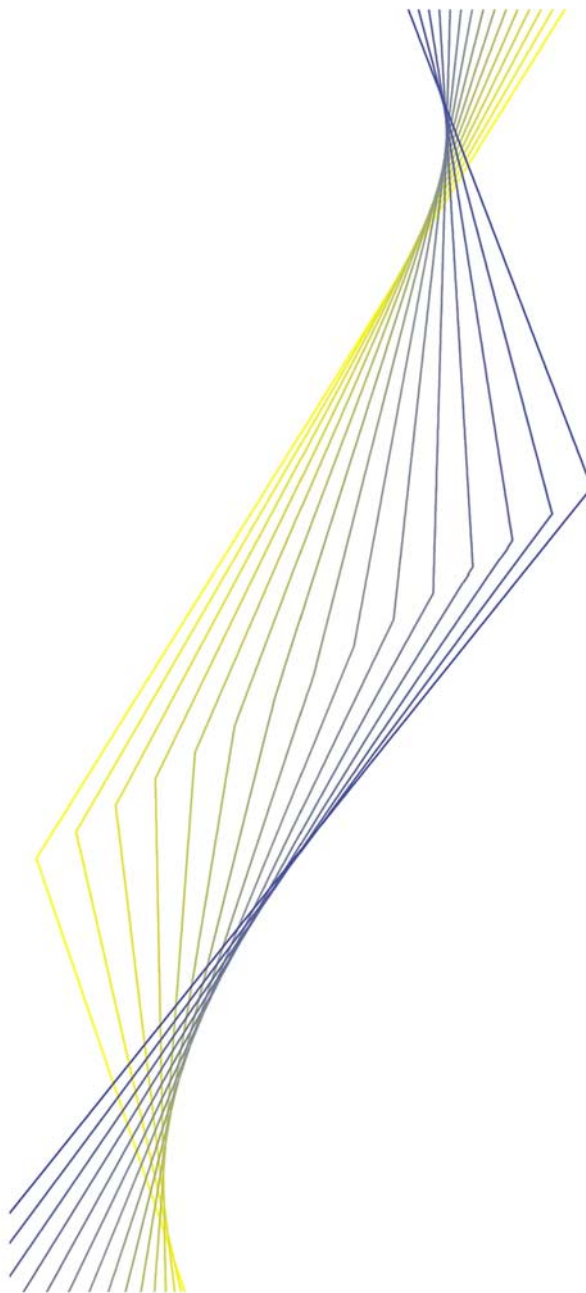
MINIMUM COMMON PERFORMANCE FEATURES OF RTGS SYSTEMS WITHIN TARGET

November 2001 edition

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MINIMUM COMMON PERFORMANCE FEATURES OF RTGS SYSTEMS WITHIN TARGET

1. Introduction

Because the “Minimum performance features of the Interlinking” have already been defined in the Interlinking User Requirements, this paper mainly covers “Minimum common features of RTGS systems within TARGET”. Together, both papers define the “Minimum common performance features of TARGET as a whole”.

2. The structure of the TARGET system

2.1 The TARGET components

The TARGET system is defined as a payment system composed of one RTGS system in each of the countries participating in EMU and the ECB payment mechanism. RTGS systems in non-EMU countries which were existing Member States of the European Union (EU) already at the start of stage III, may also be connected, provided that they are able to process the euro alongside their national currency. The RTGS systems and the ECB payment mechanism are interconnected by means of common procedures (known as the “Interlinking” system) to allow payment orders to move from one RTGS system to another (Interlinking User Requirements section 2.1).

2.2 Elements of national RTGS systems

2.2.1 Core element

National RTGS systems are gross settlement systems in which each transaction is processed and settled in real time. This means that settlement takes place before the advice is passed to the transferee. In this framework, the settlement is immediately irrevocable and final. An irrevocable and final transfer effects a discharge of the obligation to make the transfer (Interlinking User Requirements section 2.2.1).

2.2.2 Supporting elements

The core RTGS function is supported by a legal and contractual basis, business functions and technical functions.

Legal and contractual basis:

- the legal basis for irrevocable and final settlements vis-à-vis the participant, provided by national law;
- in addition, the responsibilities of all entities involved, whether as participants in or as service providers to the system, should be clearly defined and confirmed by contract.

Accounting functions (Interlinking User Requirements section 2.3):

- a stable accounting framework (to provide final settlement);
- an audit trail and archiving (to comply with bookkeeping requirements).

Business functions (Interlinking User Requirements sections 2.2 and 2.5.3):

- a clear definition of the message flow (defining how and when payment/settlement information is transmitted);
- a clear definition of both the status of payment orders and the notification schemes.

Technical equipment:

- availability of systems and communication links (to allow real-time processing and timely finalisation of settlement) (Interlinking User Requirements section 2.6);
- security (integrity, authenticity, non-repudiation and confidentiality) of systems and links to ensure the correct functioning of the system (Interlinking User Requirements section 2.7).

3. The legal and contractual basis for RTGS systems

3.1 Achievement of irrevocable and final settlement

Payments within RTGS systems must not be credited to the beneficiary's account before being irrevocably debited¹ from the originator's account. Cross-border payments may be sent through the Interlinking system only once the corresponding amount has been irrevocably debited from the originator's account.

NCBs and the ECB contribute to the development of a sound legal basis for their systems. The central banks establish the rules on the functioning of their RTGS system in accordance with the instruction on payment finality.

3.2 Clarification of responsibilities of different entities

The responsibilities of the participants and the central banks as RTGS system operators are defined in the legal and operational documentation for the concerned systems.

¹ Equivalent methods such as the blocking of funds could be applied.

4. The business functions of RTGS systems²

4.1 Payment system-related functions

4.1.1 Operating hours

TARGET has long operating hours. As a general rule, it opens at 7:00 and closes at 18:00 ECB time.³ However, domestic RTGS systems may open at an earlier time for processing domestic payments only. One hour before the aforementioned closing time, participants in RTGS systems (in both euro area and non-euro area countries) stop processing customer payments in euro.

This harmonisation, based on what are currently the longest operating hours in the EU, allows for a large overlap between TARGET and the payment systems of the major financial centres in North America and the Far East, thereby supporting the efforts made by credit institutions and central banks worldwide to limit cross-currency settlement risk. A common closing time may be seen as a means to obviate the risk of substantial payments taking place outside the common operating hours and therefore prevents the occurrence of “regional”/segmented movements in interest rates affecting the conduct of the single monetary policy, which calls for an identical level of interest rates throughout the euro area.

4.1.2 Pricing policies

The pricing policies of NCBs, for payment system functions, are aimed at avoiding competitive distortions in the context of the Single Market and EMU. Within this framework, the TARGET pricing policy is directed at cost recovery, while complying with the main requirements: it should not hinder the integration of the money market and thus affect the implementation of the single monetary policy; it should maintain a level playing-field between participants; and it should contribute to risk reduction policies in payment systems.

The recovery of central bank costs involved in TARGET will enable the ESCB: i) to avoid the inappropriate use of economic resources; ii) to allocate costs, whenever possible, to the appropriate source; and iii) to avoid unfair competition between central banks’ and other payment arrangements.

In order to prepare a pricing policy based on cost recovery, a common calculation method for payment processing costs has been developed. From a monetary policy point of view, attention is being paid to the possible effects of price differentials on market arbitrage, i.e. the impact of transaction costs on effective interest yields. Overly high transaction charges or excessive price differentials would discourage interest rate arbitrage and threaten the singleness of the ECB’s monetary policy.

Moreover, the TARGET pricing policy is compatible with EU competition law and avoids a situation in which overly wide price differentials affect the level playing-field between credit institutions.

Finally, the TARGET pricing policy does not induce institutions to use less secure payment mechanisms.

² All times mentioned in this report should be seen as parameters which might be adjusted in the future based on, for example, operational experience.

³ The local time at the location of the ECB

4.1.3 Minimum amount

An initial minimum payment amount may have to be introduced for technical reasons, e.g. for limiting the volume of messages. However, there will be no obligation for the first instructed central bank to check whether the minimum payment amount has been observed.

4.1.4 Queuing facilities

Certain RTGS systems offer their customers queuing and queue-matching facilities, in some cases combined with queue transparency. However, this issue is left to central banks. No common solution is envisaged (in particular, no consolidation of payments pending in different queues).

4.2 Accounting functions

RTGS payments are settled via accounts held with NCBs. Settlement at NCBs take place in real time.

Accounting information is a domestic feature. No new cash management facility is offered to credit institutions which have several accounts within TARGET (because they are direct participants in several RTGS systems).⁴ In particular, there will be no provision for real-time consolidation of accounts.

4.3 Provision of Intraday Liquidity

In principle, the technical and functioning rules should be identical for RTGS systems of euro countries participating in TARGET, or RTGS systems of non-euro countries connected to it⁵.

In particular, fully collateralised intraday credit may be provided either by granting participants in RTGS systems the possibility of overdrawing their account with the central bank during the day, and/or by using intraday repurchase agreements.

The conditions at which the non-participating NCBs can provide intraday credit to their participants were set out by the ECB Governing Council in July 1998.

4.4 Communication functions of RTGS systems

All RTGS systems transmit settlement and business information between sending and receiving credit institutions in real time. However, within TARGET, for domestic communication, central banks can retain or develop their own communication infrastructure (V-shape, Y-shape or L-shape).

4.5 Processing and transmission time

The processing and transmission time from one RTGS system to another is defined as the sum of the time required in both the sending and the receiving systems, including the communication between the two systems (i.e. the time required by the RTGS system and the domestic Interlinking component – each system has a maximum of 7.5 minutes – plus the time needed for the transmission of the data between national Interlinking components). Under normal circumstances, the transmission time for the Interlinking network will be less than ten seconds for 99% of the traffic, and less than 15 minutes for the remainder. The maximum total time is defined as 30 minutes (this definition covers the period from the debiting of

⁴ The facilities which are (or will be) offered by some domestic RTGS systems to their participants are not affected by this decision.

⁵ These common rules concern the RTGS systems of non-euro countries only when they process euro.

the account of the ordering bank by the sending RTGS system until the crediting of the account of the beneficiary bank at the receiving NCB, and includes the transmission time).

4.6 End-of-day procedures during a normal business day

4.6.1 Cut-off time for customer payments

RTGS systems stop accepting customer payments at 17:00 (ECB time). This cut-off time is valid for both domestic and cross-border customer payments. Customer payments are defined as payment messages in the MT100 and MT103 formats, or the equivalent national message format (which would be transmitted cross-border using the MT100 or MT103).

NCBs can continue to process domestic customer payments which were in a queue at 17:00, if and when funds or overdraft facilities become available. Payments received after 17:00 are rejected.

In summary, each NCB will apply the following rules:

- At 17:00, NCBs stop accepting new customer payment orders from their participants;
- After 17:00, only those customer payments that were accepted before 17:00 are debited. In principle, cross-border payments should be presented to the computer-based terminal (CBT) before 17:07.30 and, in any event, cross-border customer payments in a queue are cancelled at the latter time at the latest;
- Depending on local circumstances, **domestic** customer payment orders which were already in a queue at 17:00 may still be debited if and when funds or overdraft facilities become available.

Cross-border customer payments debited by the sending NCB are processed without any further hurdles (i.e. no automatic control of timely sending is provided by the receiving NCBs). Credit institutions receiving third party payments after the cut-off time are obliged to accept them.

4.6.2 Cut-off time for interbank payments

On normal operating days the “external closing of TARGET”, i.e. the closing time for all national RTGS systems participating in (or connected to) TARGET is 18:00. No further payments are accepted for processing after the closing time.

Payments which are received after 18:00 are rejected. However, cross-border interbank payments which have been received but queued due to missing funds can continue to be processed in both directions. All NCBs continue to credit receiving RTGS participants with payments received through the Interlinking.

Domestic interbank payments which are in a queue at 18:00 can still be processed, because funds received through the Interlinking after the closing time may release them. The last attempt to process domestic payments in a queue has to take place immediately after the Interlinking component has been allowed to close by the ECB

In summary:

- before 18:00, payments are processed if funds or overdrafts are available; otherwise they are queued or rejected depending on the features of the RTGS system;
- at 18:00, NCBs stop accepting new payment orders from their participants;
- after 18:00, only payments accepted before 18:00 are debited. In principle, cross-border payments should be presented to the CBT before 18:07.30 and, in any case, cross-border payments in a queue are cancelled at the latter time at the latest. Depending on local circumstances, domestic interbank

payment orders which were already in a queue at 18:00 may still be debited if and when funds or overdraft facilities become available.

In principle all payments debited in one NCB need to be credited the same day in another NCB. Payment orders received at 18:00 should be sent through the Interlinking by 18:07.30 at the latest.⁶

4.6.3 End-of-day control procedures in national RTGS systems

End-of-day control procedures in national RTGS systems (concerning domestic activity) are conducted according to domestic rules. The daily Interlinking activity needs to be successfully finalised before these domestic control procedures can be considered finalised.

4.6.4 Reimbursement of intraday liquidity and finalisation of account balances

The timely reimbursement of intraday liquidity provided by an NCB to RTGS participants by means of collateralised intraday overdrafts or intraday repos has to be monitored in some way. If intraday liquidity is provided by means of intraday repos, a procedure needs to be in place to check (within or outside the RTGS) that intraday repos entered into during the day are reversed (i.e. the intraday loan is reimbursed) before the closing time of the RTGS system. The details of the framework under which intraday overdrafts or intraday repos are reimbursed is to be determined by each NCB.

Account balances of direct RTGS participants are drawn up only after the successful finalisation of all end-of-day control procedures by the NCBs and the ECB (i.e. after it has been confirmed that no further funds are to be debited or credited in the RTGS accounts).

4.7 End-of-day procedures during abnormal situations

4.7.1 Abnormal situations

For RTGS systems, abnormal situations are those which cause serious delays during the day and/or for the end-of-day procedures during a normal business day but which can be resolved by 20:00.

4.7.2 Stopping of payments on the sending side

Once one NCB is in a contingency⁷ situation and the ECB has asked the other NCBs to stop sending further payments to the NCB experiencing difficulties, the other NCBs should, as soon as possible, stop sending any new payments addressed to the former.

If payments are nevertheless sent by RTGS participants (or have been sent before the dissemination of the information), NCBs should either reject the payments or queue them before debiting them. As far as possible, NCBs should avoid blocking payments after they have been debited (in order to avoid withdrawing liquidity from the RTGS participants or the TARGET system as a whole).

⁶ Presented to the CBT.

⁷ A contingency situation is any kind of situation in which defined standard time schedules are exceeded but where the system as a whole can continue to work after a delay (e.g. by switching to a backup system after a processing system has started to experience problems).

4.7.3 Processing of late customer and interbank payments received from or credited on the accounts of RTGS participants

The cut-off time for customer payments may be postponed (beyond the 17:00 deadline) in exceptional circumstances and only if strict criteria are met. The TARGET closing time of 18:00 will still apply unless the delay to the customer cut-off time is excessive. The period between the cut-off for commercial payments and the cut-off time for interbank payments is provided to enable all RTGS participants to manage their end of day treasury positions. In case of need, NCBs and the ECB will postpone the TARGET closing time of 18:00, thus allowing new (critical) interbank payments to be exchanged.

4.7.4 Finalisation of the business day

NCBs/the ECB have to be capable of conducting end-of-day control procedures in their own systems, reimbursing intraday liquidity and finalising account balances resulting from payment activities after having completed the payment processing by 20:00 at the latest.

4.8 End-of-day procedures during a “disaster” business day

4.8.1 Disaster situation

A disaster situation is defined as a situation either (a) where the payments processing capability of a NCB or the ECB has been lost as a result of, for example, a fire or an explosion, and it is not possible to foresee when the payments processing system will be operational again or (b) where the system is not expected to be up and running again before 20:00. Furthermore, a technical problem that has already postponed the closing time until 20:00 without being resolved may also be declared, by the ECB, a “disaster” situation.

4.8.2 Stopping processing of payments on the sending side

If an NCB/the ECB receives information on a disaster situation it is obliged to stop debiting cross-border payment orders addressed to the NCB/ECB experiencing a disaster situation immediately. Any payment sent to the NCB/ECB experiencing the disaster situation and not acknowledged within 30 minutes (provided that the sending NCB is able to ensure that it has not already been received by the receiving side), should be cancelled and re-credited to the account of the sending credit institution, unless a recovery is expected within a reasonable time. The settlement (crediting) of all payments debited and sent through the Interlinking by the NCB experiencing the disaster should be finalised (if possible, i.e. where there is no error in the message) by the receiving NCBs.

4.8.3 Enforced closing procedure

If the ECB declares a situation to be a disaster situation, then the enforced closing procedure should be activated immediately.

Payments pending in TARGET when the enforced closing procedure is initiated have to be credited by receiving NCBs or re-credited and rejected by sending NCBs according to a bilateral agreement to be established between each pair of NCBs involved. RTGS systems have to be prepared to re-credit payments which have been sent earlier.

4.8.4 Finalisation of the business day

Those central banks which are not in a contingency situation have to complete the business day as described in Section 4.6.4.

4.9 Currency conversion

The national RTGS systems have to be able to provide the Interlinking with payments denominated in euro only, regardless of the currency that may be used in the domestic RTGS system.

4.10 Audit trail

Auditability means that it should be possible to identify whether:

- individual payment messages clearly meet the agreed detailed specification for the format and content of messages sent through the Interlinking system;
- there is an audit trail of the operational system good enough to enable an independent assessment to be made regarding the accuracy and timeliness of payment messages passing through the system, and the extent to which other defined performance parameters of the system are being met.

5. Reliability of RTGS systems

5.1 RTGS systems and TARGET

RTGS systems are composed of a telecommunications infrastructure and RTGS processing equipment in the central banks. In addition, in the TARGET context, RTGS systems have to provide (as a separate component or within the system itself) features for inter-NCB/ECB payment transfers. The domestic equipment in front of the SWIFT telecommunications network that links the central banks is seen as the NCBs'/ECB's own equipment for RTGS/Interlinking purposes in TARGET.

The statement in the Interlinking User Requirements reads as follows:

“Because the NCBs, and the ECB, are free to implement Interlinking application functions either within domestic RTGS systems or in a separate module, the Interlinking User Requirements do not provide a definition of availability criteria for domestic Interlinking components.”

Hence, this paper deals with this matter from the viewpoint of “national (RTGS) functionality in front of the SWIFT network”.

5.2 Security of RTGS systems

5.2.1 Integrity and authenticity (Interlinking User Requirements section 2.7.2)

The methods applied provide features designed to prevent any threat to the integrity and authentication of the data during communication, processing and storage. These methods are designed in such a way that they cannot be compromised either now or in the foreseeable future. They are implemented and monitored in such a way as to ensure their proper use.

5.2.2 Non-repudiation (Interlinking User Requirements section 2.7.2)

Given the fact that RTGS systems operate in a reliable environment (banks and NCBs/the ECB are seen as trustworthy partners), non-repudiation should be seen as advisable but not indispensable for RTGS systems.

5.2.3 Confidentiality (Interlinking User Requirements section 2.7.3)

Confidentiality can be seen as an important service for RTGS system users, but has no impact on availability. Data should remain confidential during processing and storage in systems or long-term storage media. Ideally, data should be transported in an encrypted form.

However, at present, banking communities (and their customers) in EU countries have very different views on the risks of a loss of confidentiality during telecommunication via public or private networks. Some encrypt data during RTGS system communications, others transmit plain text (there are no known cases of loss of confidentiality). In the short term agreement on and implementation of the “encryption of data during national RTGS system communication” seems to be impossible. Against this background, the following would appear to be adequate:

In order to be as open as possible for TARGET users, details of which NCBs encrypt and which NCBs do not encrypt domestically should be made public. However, based on the current trends in the telecommunications and payment systems market, those NCBs that do not provide encryption features domestically at present should move to encryption at a later stage.

6. Responsibility for and auditability of minimum common performance features

Each NCB, and the ECB, is responsible for the compliance of its systems as explained in this paper.

The NCBs' and the ECB's auditors are responsible for auditing the system. They may wish to agree on common audit procedures or even common audit groups for the examination of RTGS systems within TARGET.'