

A decorative graphic consisting of six colored squares arranged in a 3x2 grid. The top row has a light blue square on the left and a teal square on the right. The middle row has a dark blue square on the left and a teal square on the right. The bottom row has a light gray square on the left, a dark gray square in the middle, and a light teal square on the right.

The Clearing House Customer Documentation

INTRODUCTION TO THE RTP® SYSTEM

Version 1.0
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CHANGES

Version	Section	Change	Comments
1.0	N/A	Initial Published Document	None

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1 ABOUT THIS MANUAL

The TCH *Getting Started with the RTP® System* document provides high level information required by team members of all Participants and Third-Party Service Providers to gain an initial understanding of the RTP System offered by The Clearing House Payments Company, LLC (TCH). Additional information about network connectivity, message formatting, and more detailed RTP System functional flows are contained in associated documents listed below.

Participant - A depository institution that has entered into a RTP Participant Agreement with TCH.

Third Party Service Provider (TPSP) - A commercial data processing service organization, a Person operating a data transmission facility, or any other Participant that acts on behalf of a Participant, as such Participant's agent, to transmit and receive Payment Messages, Payment Message Responses and Non-Payment Messages through the RTP System.

1.1 Intended Audience

This document is intended as a reference for application programmers, service operators, product managers, legal, risk, and Information Security teams at Financial Institutions (FIs), and Third-Party Service Providers (TPSP) that want to develop interfaces to the RTP System, and as a reference document for potential Participant Customers of the RTP System (e.g., Consumers, Corporations, and Government entities).

Some readers, depending on their role, may wish to stop reading after Chapter 2 "Getting Started" which provides a thorough but brief overview of how the RTP System functions, how it is similar to and different from other payment systems. Chapters 3, 4 and 5, while written at a high-level for this Introduction document, are recommended to readers whose roles necessitate a more detailed interest. These chapters provide an initial look at important RTP Message types without going into the deeper detail provided by the *RTP System Message Flows* document and *RTP® Message Specifications* document.

Note: For simplicity, any reference to Participant systems in this document can mean either the Participant's own in-house system or a system owned by a TPSP that processes the RTP System Transactions.

1.2 Related Documentation

To gain a full understanding of RTP System processing, TCH suggests that members of individual teams should use the table below to find relevant documents which should be read in conjunction with *Introduction to the RTP® System*. Some of the documents below contain confidential information, and can only be obtained from TCH once a relevant agreement is in place.

Documents	FIs and TPSP					End-Users
	Dev	Ops	Prod	Legal	Risk	Prod
<i>Introduction to the RTP® System (this document)</i>	•	•	•	•	•	•
<i>Business Principles for the RTP® Network</i>	•	•	•	•	•	•
<i>Real-Time Payments Operating Rules</i>		•	•	•	•	•
<i>Real-Time Payments Participation Rules</i>		•		•	•	
<i>RTP System Interface Guide</i>	•	•				
<i>RTP® Message Specifications</i>	•	•				
<i>Remittance Advice Specification (remt.001)</i>	•	•				
<i>RTP Reports Specification</i>	•	•	•			
<i>Customer Display Guidelines</i>	•	•	•			•
<i>RTP System Message Flows</i>	•	•	•			
<i>RTP® Settlement Model for Funding Participants</i>	•	•	•			
<i>RTP® Prefunded Requirement for Sending Participants</i>			•	•	•	
<i>Information Security Standards and Requirements</i>	•	•		•	•	
<i>RTP Continuous Operations Documentation</i>	•	•			•	
<i>RTP Operator – Customer Information Security Standards</i>		•		•	•	
<i>Risk Management and Fraud Control Requirements</i>	•	•			•	
<i>RTP Client Fedwire Interface Instructions</i>	•		•			
<i>Requirements for Request for Payment Customers</i>		•		•	•	•
<i>PSP Compliance Criteria</i>	•	•	•	•	•	•
<i>Application of Key UCC 4A Concepts and Terms to the Real-Time Payment System</i>				•	•	
<i>Minimum Requirements for Directory Service Providers</i>		•		•	•	

Table 1. RTP System documentation inventory and intended audiences.

2 GETTING STARTED

2.1 What is the RTP System?

The RTP System operated by The Clearing House Payments Company, LLC (TCH) provides consumers and businesses the ability to conveniently send and receive immediate funds transfers directly from their accounts at financial institutions, anytime 24 hours a day, and 7 days a week. Financial Institutions can utilize RTP features to create new unique offerings for their retail and corporate customers:

- **24/7** – The RTP System is available for Customers¹ to send or receive Payments at any time.
- **Immediate Availability** – Payments to Customers are received within seconds of having been sent; the Receiving Participant (the FI Participant receiving the Payment) is generally required to accept all Payments sent to it and to make funds available immediately. There are certain limited exceptions to these general requirements.
- **Payment Certainty** – Payment Senders receive confirmation that their payment was successful (or rejected) within seconds. Payment Receivers can be certain that once funds are in their account, the transaction is final. The Sender will not be able to revoke or recall a Payment once it has been submitted to the RTP System.
- **Ubiquity** – The RTP System is accessible to all federally insured depository institutions, regardless of size or charter type, and already reaches the majority of U.S. account holders who have digital access to their accounts.
- **Extensibility** – Flexible messaging functionality is included to support value-added products. For example, the RTP System provides messaging capability enabling a Request for Payment or a Request for Information about a Payment.
- **Security** – The RTP System employs industry best practices to ensure the safety and security of the network. All Messages originate and terminate within a trusted bank network that meets stringent security and privacy protection standards.
- **Account Data Privacy** – The RTP System will support token functionality to help protect Sender and Receiver account credentials as they are transmitted through the RTP System.
- **Convenience** – Customers of RTP Participants are able to initiate Payments directly from their existing Accounts 24/7 and do not need to establish intermediary accounts.
- **Cash Flow Control** – The ability to send Payments exactly when desired and receive Payments immediately gives Participants' Customers more control over cash flow, which is particularly important for cash-constrained small businesses and consumers.
- **Adaptability** – The RTP System has a flexible architecture to adapt to changing market needs.

¹ References to "Customers" within this document means account holding customers of RTP Participants, not Customers of TCH, Other capitalized terms have the meanings ascribed to them in the RTP Operating Rules.

- **Global Standards** – The RTP System utilizes the ISO 20022 international standard for its Message formats.

2.2 RTP Overview and Sample Uses

The RTP System provides consumers and businesses the ability to conveniently send and receive immediate funds transfers directly from Accounts at their financial institution anytime 24 hours a day seven days a week . This functionality can be applied in a number of use cases familiar to consumers as shown in Figure 1 below. This document describes how these scenarios (and more) are initiated and completed by FIs that participate in the RTP System. The RTP System stands in the middle of these Transactions providing routing and settlement functions.

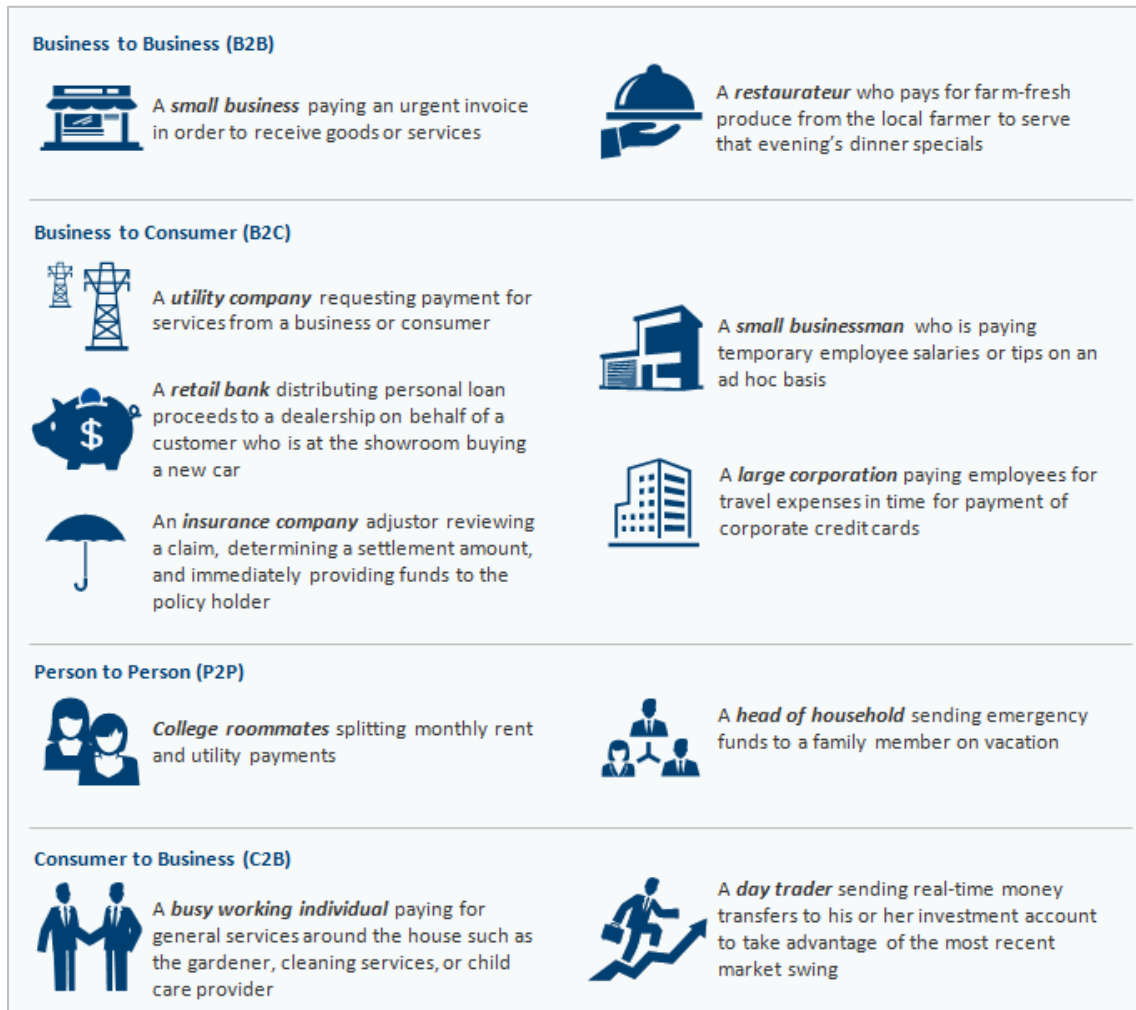


Figure 1. Scenarios supported by the RTP System.

2.3 RTP Roles

There are five major roles associated with all payments systems in the U.S.:

- The person or company that wishes to send a payment;
- The financial institution (FI) whose customer wishes to send a payment;
- A network for routing and settling payments between participating FIs;
- The FI that receives the payment for its customer’s account; and
- The person or company that receives the payment.

For the reader just starting to familiarize themselves with the RTP System, this *Introduction to the RTP® System* document will use the following terms for these five roles:

Role Name	Description
Payer	The person or company that wishes to send a payment.
Payer’s FI	The financial institution (FI) whose customer wishes to send a payment.
The RTP System	A network for routing and settling payments between participating FIs.
Payee’s FI	The FI that receives the payment for its customer’s account.
Payee	The person or company that receives the payment.

Table 2. Role names for this document.

2.4 High-level Payment Flow

RTP Payments are executed through a sequence of Message transmissions as outlined in Figure 2. A Payment starts with a Payer sending a payment instruction via a channel application (such as an online or mobile banking application) provided by the Payer’s FI who is a Participant in the RTP System. The Payer’s FI creates an RTP Instruction Message² (the payment) from the Payer’s instructions which is sent to the RTP System for format validation and routing to the Payee’s FI. The Payee’s FI then sends a confirmation back to the RTP System, which is then sent back to the Payer’s FI.

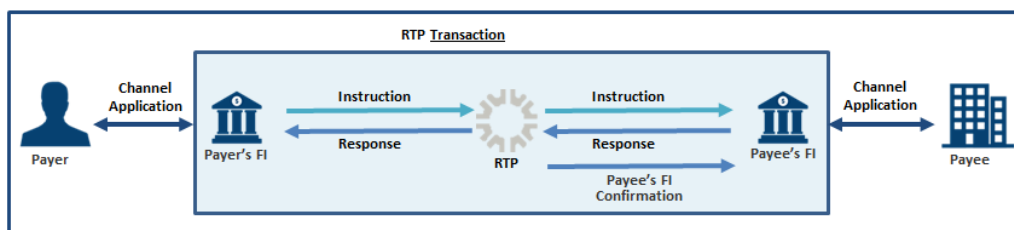


Figure 2. The RTP System’s end-to-end Message flow. This example shows a Payment Message flow.

² In the figures within this document, the RTP Instruction Message is referred to as the RTP Request, as this message is sent via that Payer’s and RTP’s “Request queues”. See the RTP System Interface Guide for more information about the use of MQ in RTP.

The RTP Instruction Message is then forwarded by the RTP System to the Payee's FI. This type of Instruction Message relays a payment instruction to the Payee's FI, which must also be a RTP Participant. The Payee's FI acknowledges receipt of the Payment and agrees to provide immediate funds availability to the Payee by creating and sending an "accept" RTP Response Message back to the RTP System, which then routes the Response Message to the Payer's FI. The Payer's FI then informs the Payer of the successful completion of the Payment via their channel application.

As part of this round-trip messaging related to a Payment:

- The Payer's FI authenticates the Payer's payment instruction, ensures the Payer has adequate funds or credit available to fund the Payment and sends the Payment (Instruction Message) to the RTP System;
- The RTP System performs technical and business validations of the Payment, ensures the Payer FI has a sufficient prefunded ledger position, and routes the Payment to the Payee's FI;
- The Payee's FI processes the Payment and generates an RTP Response Message indicating whether the Message was accepted or rejected;
- Upon receipt of the "accepted" Response Message, the RTP System settles³ the Payment, sends the Response Message to the Payer's FI, and sends a Confirmation Message to the Payee's FI;
- The Payer's FI informs the Payer of the success or failure of the Payment; and
- Upon receipt of the Confirmation Message from the RTP System, the Payee's FI immediately posts the funds to the Payee's Account and makes the information contained in the Payment available to the Payee using the FI's channel application.

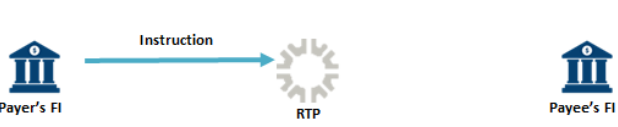
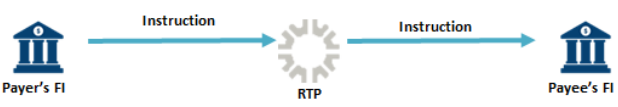
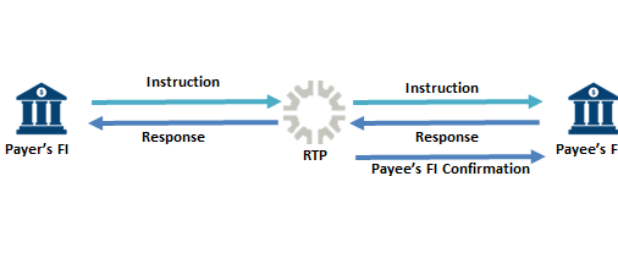
In addition to the Payment outlined above, RTP includes a number of Payment-related Messages (Non-Payment Messages) that enable Payees and Payers or Payee FIs and Payer FIs to communicate data regarding a Payment. A Payment-related Message may be a Request for Payment, a Request for Information, a Remittance Advice, a Payment Acknowledgement, or a Request for Return of Funds.

³ A description of RTP System settlement is covered in detail in the *RTP® Settlement Model for Funding Participants* document.

2.5 Terms and Acronyms

Throughout this document and other RTP documentation, the terminology used to describe the flow of information among the various RTP roles will be important to understand. All of the Message flow examples in this document show the transmissions between two FI Participants and the RTP System. Any communication between the Payer’s FI and the Payer, or the Payee’s FI and the Payee are proprietary to the FI’s and are outside the scope of this document.

2.5.1 RTP Message Flow Terms

Term	Example	Description
Leg		A transmission from an FI to the RTP System or the RTP System to an FI. It should be noted that either FI may initiate a RTP Instruction.
Message		A transmission of an Instruction or of a Response from one FI to another FI through the RTP System.
Transaction ⁴		A full round-trip of an Instruction and Response Messages. All Payment Transactions have 5 Legs (as in the example shown) including the Payee’s FI Confirmation Leg. Payment-related Transactions have 4 Legs and RTP Control Messages have 2 Legs. ⁵

⁴ Notwithstanding use of the term “transaction” to describe sets of RTP instruction and response messages, there is no exchange of value in the message sets, other than Credit Transfer (pacs.008 and pacs.009) message sets.

⁵ For a complete description of all RTP Transactions see the *REAL-TIME PAYMENTS SYSTEM MESSAGE FLOWS* document found on www.theclearinghouse.org/rtp.

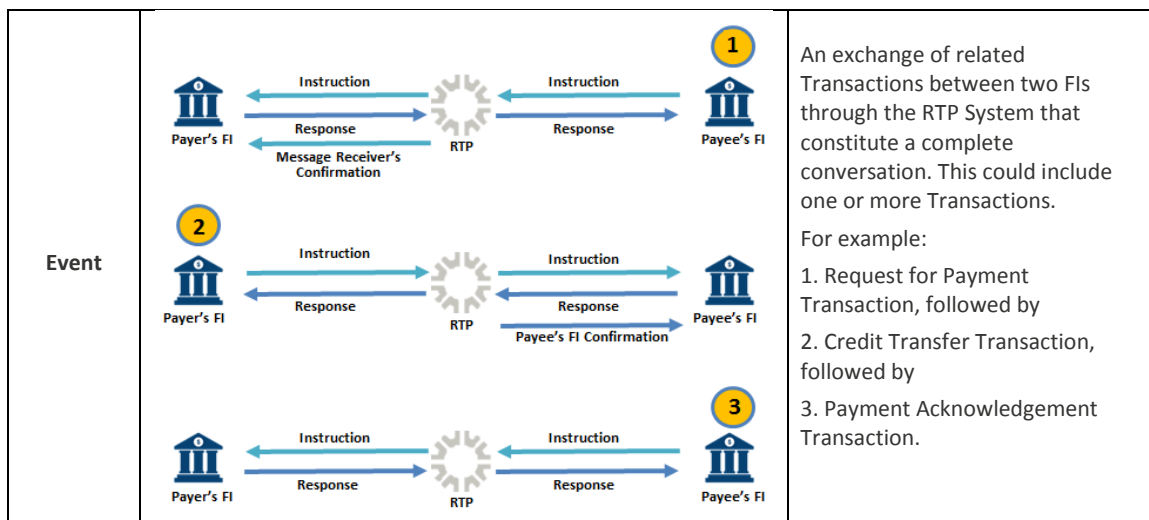


Figure 3. Key Message flow definitions.

2.5.2 RTP Terms

The following table contains definitions of some common RTP System terms and acronyms used in this document and other RTP documents.⁶ Note that even though the preceding sections of this document used simplified terms as discussed in section 2.3, definitions as found in the *Real-Time Payments Operating Rules* and other RTP documentation can be found below and will be used in subsequent sections. If a term is not defined in the *Real-Time Payments Operating Rules* or if the definition has been modified for clarity, it is marked with a (*).

Term	Definition
Account	An account held by a Participant for a Customer to or from which a Payment is received or sent.
Authentication*	The process of verifying the claimed identity of a Customer.
Channel Application*	The Participant's (or TPSP's) system the Customer interacts with that is responsible for the initiation or the receipt and processing of an RTP Message (e.g., internet banking, mobile banking).
Control Messages*	System-level Messages used to control which Participants are active on the RTP System. This includes Sign-on, Sign-off, Echo, Table reset and corresponding Response Messages.
Credit Transfer*	The basic multi-purpose Payment Message used for multiple use cases, including remittance information.

⁶ This list is not inclusive of all terms defined within the RTP Operating Rules. Please refer to the *Real-Time Payments Operating Rules* and *Real-Time Payments Participation Rules* for more information.

Term	Definition
Current Prefunded Position	The RTP System shall continuously records a Current Prefunded Position for each Participant. A Participant's Current Prefunded Position is the sum of a Participant's Net Position (whether positive or negative) and its Opening Prefunded Position.
Customer	A Sender, Receiver, or a Person that initiates or receives a Non-Payment Message, as the context may require.
Cutover*	The Cutover (or close) of a Reconciliation Window immediately causes the current Reconciliation Window ID to be incremented and establishes a new Opening Prefunded Balance. All new Messages received from that point are allocated to the new Reconciliation Window. Messages that were in flight at the time of cutover will complete within the old window.
Disbursement	A Participant may request that TCH, as the agent for all Funding Participants and Funding Agents, transfer funds from the Prefunded Balance Account to that Participant (or its Funding Agent) in an amount up to the amount of any Excess Liquidity. Upon request, the RTP System will validate that the Participant has Excess Liquidity and, if so, create a Fedwire payment to disburse the requested amount of Excess Liquidity to the Participant either directly or through a Funding Agent. Upon validating that a Participant's request is less than or equal to its Excess Liquidity, the RTP System shall record entries to decrease the Participant's Net Position and Current Prefunded Position by the amount of the transfer.
Duplicate	An Instruction Message having the same Transaction ID as a previously received Request.
Event Code*	A numeric code associated with a type of System Notification Message. See Table 6 for a list of all Event Codes.
Excess Liquidity	The amount of a Participant's Current Prefunded Position that exceeds the Participant's Prefunded Requirement.
Fedwire	The Fedwire Funds® Service operated by the Federal Reserve Banks.
FI	A depository financial institution.
FRBNY	The Federal Reserve Bank of New York. The bank where the Prefunded Balance Account is held.
Funding Agent	A depository institution that has become a party to the Prefunded Balance Account Agreement and is either a Funding Manager or a Funding Provider.

Term	Definition
Funding Participant	A Participant that has become a party to the RTP Prefunded Balance Account Agreement with the Prefunded Balance Account Bank and that requests and receives disbursements from the Prefunded Balance Account, as permitted by the RTP Operating Rules, to its Federal Reserve account and if the Participant is a Sending Participant, prefunds for itself in accordance with the RTP Participation Rules and these RTP Operating Rules.
ISO 20022	A standard prepared by the ISO Technical Committee TC68 defining XML message fields, formats and protocols designed to provide a universal financial industry message scheme. See www.iso20022.org/payments_messages.page for complete information on ISO 20022 payment messages.
ISO*	International Standards Organization (a worldwide federation of national standards bodies).
Low and Normal Watermarks	A Funding Provider and Participants with a funding obligation may establish a low watermark value for its Current Prefunded Position that will trigger an alert from the RTP System when the Participant or Funding Provider's Current Prefunded Position falls to or below the value. Once the system sends a low watermark alert, it will not send any further low watermark alerts until (i) the Funding Provider or Participant's Current Prefunded Position increases to a normal watermark value that the Funding Provider or Participant has established and (ii) the Current Prefunded Position again falls below the low watermark value.
Message Flow*	The set of actions that describe the Messages and processes a Transaction undergoes in order to transfer Payment and Non-Payment-related Messages from one Participant to another in the RTP System.
Message Receiver	A Participant that receives a Payment-related Message subject to and in accordance with the RTP Operating Rules and the RTP Technical Specifications.
Message Sender	A Participant that sends a Payment-related Message subject to and in accordance with the RTP Operating Rules and the RTP Technical Specifications.
Message Status Report*	The Response from the Receiving Participant (for Payments) or Message Receiver (Non-Payment Messages) indicating that a Message was received and able to be processed or if the Message was rejected. Note: This is the same as the "RTP Response Message" described in chapter 2 of this document.
Net Position*	A Participant's "Net Position" starts at zero dollars at the beginning of each Reconciliation Window, and is calculated as the net of all increases and decreases from the Participant's RTP Payments sent and received, Supplemental Funding, and Disbursements, as applicable, during that Reconciliation Window.

Term	Definition
Non-funding Participant	A Participant that is not a Funding Participant and that has an agreement with either (i) a Funding Manager to act on the Participant's behalf with respect to its funding obligations under the RTP Participation Rules and these RTP Operating Rules or (ii) a Funding Provider to be a Non-funding Group Member.
Non-Payment Message	A Message other than a Payment Message or Payment Message Response, in the format specified in the RTP Technical Specifications that is transmitted between the RTP System and a Participant or between Participants. Non-Payment Messages include Payment-related Messages and Payment-related Message Responses.
Opening Prefunded Position*	<p>A Participant's Opening Prefunded Position is the Participant's Current Prefunded Position at the opening of a new Reconciliation Window (sometimes called the Closing Prefunded Position of the prior Reconciliation Window). Once a Participant's Opening Prefunded Position is recorded, the position does not change until the opening of the next Reconciliation Window.</p> <p>The definition above is simplified from the <i>Real-Time Payments Operating Rules</i>. Refer to the <i>Real-Time Payments Operating Rules</i> for the complete definition.</p>
Participant	A depository institution that has entered into a Participant Agreement and Indemnity with TCH.
Participant Portal	A browser based administrative portal provided by TCH that is accessed over the internet using a secure VPN, otherwise known as the RTP Management Portal.
Payment	A transfer of value from a Sender to a Receiver through the RTP System pursuant to a Payment Message.
Payment Acknowledgement	A Payment-related Message that a Message Sender submits to the RTP System on behalf of the Receiver (Customer) to acknowledge receipt of an RTP Payment to the Sender.
Payment-related Message	A Message, other than a Payment Message or a Payment Response Message Response, in the format specified by the RTP Technical Specifications that is transmitted between Participants. A Payment-related Message may be a Request for Payment, a Request for Information, a Remittance Advice, a Payment Acknowledgement, or a Request for Return of Funds.
Payment-related Message Response	A Message in the format specified by the RTP Technical Specifications that a Participant submits to the RTP System in response to a Payment-related Message. A Payment-related Message Response may be a Response to Request for Payment, a Response to Request for Information, or a Response to Request for Return of Funds.

Term	Definition
Prefunded Balance Account	The special deposit account established for the joint benefit of all Funding Participants and Funding Agents by the Prefunded Balance Account Bank for the purpose of supporting the operations of the RTP System.
Prefunded Requirement	A dollar amount determined by TCH that (i) is the minimum level of funding that a Participant or a Funding Provider is required to pay into the Prefunded Balance Account before the Participant or a Participant that is a Non-funding Group Member of the Funding Provider's Non-funding Group can begin sending Payment Messages using the RTP System and (ii) is equal to the Current Prefunded Position that a Participant or Funding Provider is generally expected to maintain in the RTP System at all times, as further described in Rule VI . Participants that only receive RTP Payments and Participants that are Non-funding Group Members will not have a Prefunded Requirement.
Reason Code	A code signifying the reason for the rejection of the original Message. It is used in the Payment Status Report (pacs.002) sent by the Message Sender or the RTP System (depending on where the rejection happened) to the Message Sender if the Request has been rejected.
Receiver	The Customer of a Receiving Participant whose Account is designated for receipt of an RTP Payment in a Payment Message.
Receiving Participant	The Participant that holds the Receiver's Account and that receives a Payment Message.
Reconciliation Window	One or more defined time periods during the RTP Day for tracking Payment and funding activity for purposes of producing reconciliation reports at the close of the time period.
Remittance Advice	A Payment-related message that a Sending Participant submits to the RTP System that is associated with, and that provides additional information about, an RTP Payment.
Instruction	Any Message that initiates a new exchange of Payment or Payment-related information between two Participants in the RTP System or between the Participant and the RTP System. (Credit Transfer, Request for Payment, Request for Information, Remittance Advice, etc.)
Request for Information (RFI)*	A Payment-related Message that a Receiving Participant submits to the RTP System for delivery to Sending Participant to so it may request from a Customer additional information in connection with an RTP Payment or Request for Payment (RFP).
Request for Payment (RFP)*	A Payment-related Message that a Message Sender submits to the RTP System to for delivery to a Message Receiver to request an RTP Payment from a Customer .of a Message Receiver.
Request for Return of Funds (RFR)	A Payment-related Message that a Sending Participant submits to the RTP System to request return of funds related to an RTP Payment.

Term	Definition
Response Message*	Any status or system based acknowledgment Message sent immediately in response to a Request. Note: Messages such as the Response to Request for Payment (RFPR), Response for Request for Information (RFIR), and Response to Request for Return of Funds (RFRR) are initiated by the Participant as an answer to an earlier Request Transaction and are considered new Request Messages rather than Response Messages.
Response to Request for Information (RFIR)*	A Payment-related Request Response Message sent to answer with information requested by an RFI Message.
Response to Request for Payment (RFPR)*	A Payment-related Response Request Message sent to answer with information requested by an RFP Message.
Response to Request for Return of Funds (RFRR)*	A Payment-related Request Message Response that a Receiving Participant submits to the RTP System with information in response to a Request for Return of Funds.
RTP or RTP System*	The Real-Time Payment System Network operated by The Clearing House.
RTP Technical Specifications*	The technical and messaging requirements and standards of the RTP System, as promulgated published by TCH from time to time.
Sender	The Customer of a Sending Participant that sends a Payment Instruction to the Sending Participant.
Sending Participant	The Participant that holds the Sender's Account and initiates an RTP Payment.
Supplemental Funding	A Sending Participant may transfer supplemental funds to the Prefunded Balance Account during Fedwire operating hours. Upon receipt of an advice from the Prefunded Balance Account Bank relating to such a transfer, the RTP System shall record an increase in the Sending Participant's Net Position and Current Prefunded Position in the amount of the transfer.
System Notification Message (SNM)	Used by the RTP System to notify the Participants, either individually or as a group, of significant events or information.
TCH	The Clearing House Payments Company, LLC
Third Party Service Provide (TPSP)	A commercial data processing service organization, data transmission facility, or any other Participant that acts on behalf of a Participant, as such Participant's agent, to transmit and receive Payment Messages, Payment Message Responses and Non-Payment Messages through the RTP System.
Transaction	An individual transaction processed by the RTP System, it consists of both a Request Message and a Response Message.
Transaction ID	Unique identifier assigned by the Message Sender to unambiguously identify the transaction.

Table 3. RTP System terms and acronyms defined.

2.6 RTP and ISO 20022 Standards

The Clearing House has adopted the ISO 20022 standard for the majority of RTP System messaging. Only Control Messages use proprietary Message formats.

ISO 20022 is a framework for the international standardization of financial messaging across payments, securities, cards, foreign exchange, and other trade services. It is a worldwide effort to ensure that processes, messages, and terminology in financial services are synchronized facilitating national and global financial activity.

The use of ISO 20022 allows RTP Participants and TPSPs to develop, source, and introduce new products and innovation without requiring customized development which allows the U.S. market to move in tandem with global markets to remain competitive.

2.7 RTP Messages

RTP Messages conform to the ISO 20022 payments standard; however as the standard allows for flexibility to meet regional implementation requirements, the RTP System does not implement all Message types and content defined in the standard. Therefore, Participants and TPSPs must use the Message standards defined in the *RTP® Message Specifications* document(s) when interacting with the RTP System. These are defined as Payment Messages, Payment-related Messages, Control Messages, and System Notification Messages (SNMs).

The following table describes the Messages used in the RTP System and indicates the ISO 20022 message ID used by RTP:

Name	ISO	Usage
Payment Messages:		
Credit Transfer	pacs.008	Sent by a Payer's FI to a Payee's FI to initiate a funds transfer from a Payer's Account to a Payee's Account.
FI-to-FI Credit Transfer (planned for future use)	pacs.009	A Payment from one FI to FI for the purpose of increasing the Receiving FI's Current Prefunded Position during hours when the Fedwire Funds service is closed.
Payment Response Message:		
Message Status Report	pacs.002	Sent by the Receiving Participant to the Sending Participant to inform them the result of a Payment Message.
Payment-related Messages:		
Request for Payment (RFP)	pain.013	Sent by a Payee's FI to a Payer's FI to request a Payment from the Payer.
Request for Return of Funds (RFR)	camt.056	Sent by a Payer's FI to a Payee's FI to request that funds from an unauthorized or erroneous Credit Transfer be returned.
Request for Information (RFI)	camt.026	A multi-use message requesting additional information about a Credit Transfer or a Request for Payment.

Name	ISO	Usage
Payment Acknowledgement by Receiver	camt.035	Sent by a Payee's FI to a Payer's FI if the Payee wishes to acknowledge and/or relay information related to a received Payment to the Payer. This Message is optional as a Payee may not wish to take this additional action with respect to a received Payment.
Payment Status Request (planned 2020)	pacs.028	A Message sent by a Participant who is party to a Credit Transfer or Request for Payment to inquire as to the outcome of the Transaction should a processing error result in the Participant not knowing the outcome of the Transaction.
Remittance Advice	remt.001	Sent by a Payer's FI to a Payee's FI in conjunction with a Credit Transfer to provide remittance information to the Payee's FI. It may also be sent in conjunction with an RFP as an invoice.
Response to RFP (RFPR)	pain.014	Sent by a Payer's FI to a Payee's FI. This is a Message initiated following the completion of an RFP Transaction used to answer whether a Payment will be made or not.
RFP Expiry (RFPE) (planned 2020)	camt.056	Sent by a Payee's FI to mark a previously sent RFP as expired so that a Payment is not made in response to the RFP.
Response to RFR (RFRR)	camt.029	Sent by Payee's FI to a Payer's FI. This is a Message initiated following the completion of a RFR Transaction used to answer whether a Payment will be returned or not.
Response to RFI (RFIR)	camt.028	Sent by the Receiver of an RFI to the Sender of an RFI to answer to question(s) posed in an RFI.
Token Notification (planned 2020)	acmt.022	A message sent by the RTP System to a Participant to notify the Participant or Payer of the availability of a token for future payments to a Payee.
Payment-related Response Messages:		
Message Status Report	pacs.002	Sent by the Message Receiver to the Message Sender (for Payment Related Messages and Payment Related Message Responses) to inform them the result of a Request.
System Time-Out	camt.056	Sent by the RTP System to the Payee's FI in the event the Payee's FI does not respond within the system SLA to a Credit Transfer message (i.e. the Message times-out).

Table 4. Payment and Payment-related Messages with ISO 20022 message IDs.

3 PAYMENT TRANSACTIONS AND EVENTS

The following section describes at a high-level the Message Flows of Payment Transactions and how they are grouped into logical Events. All Messages are initiated by a Sender via a Channel Application provided by their FI and received by a Receiver via a Channel Application provided by their FI. The diagrams in this section show only the Messages to and from these FIs via RTP.

Some of the technical aspects of the RTP System's Transaction processing, such as the exact nature of each data validation performed by the RTP System and Participants, are simplified in this section. For more details, including how failures in the flows are handled by the system and

should be handled by Participants, please see other RTP System documentation as described in section 1.2.

3.1 Credit Transfer Event

A Credit Transfer can be the initial Message in a Credit Transfer Event, or the Credit Transfer could be initiated in response to a Request for Payment (RFP), in which case it is part of an RFP Event (see section 3.3). A Credit Transfer may also reference a Request for Return of Funds Message, in which case it is part of a Request for Return Event (see section 3.5).

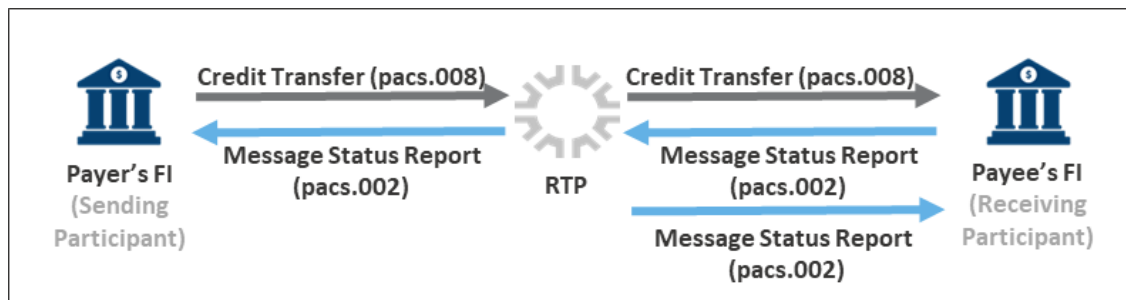


Figure 4. Successful Credit Transfer Transactions Contain Five Legs.

In this scenario, the Payer's FI authenticates the Payer and receives a Payment instruction from the Payer via a supported Channel Application and:

- Performs Account and Payment verification and approval, which may include, but is not limited to: checking Sender's Account balances, earmarking funds for the debit, and performing Fraud checks. The Payer's FI then creates a Credit Transfer Message (ISO 2002message ID = pacs.008).

The Payer's FI sends the Credit Transfer Message to the RTP System, which performs a series of formatting, process, and business rule validations before the Message is routed to the Payee's FI. RTP then awaits a response for a period of time defined as the "time-out period".

The Payee's FI receives the Message from the RTP System and conducts a number of its own validations to ensure its correctness and security.

For all validated Messages, the Payee's FI then sends the RTP System a Message Status Report (ISO 20022 message ID = pacs.002) indicating the Credit Transfer has either been accepted or rejected.⁷

The RTP System validates the Response and assuming it is received within the time-out period and formatted properly, passes it along to the Payer's FI which then informs the Sender of the status of the Payment based on the Payee FI's "accept" or "reject" response. In addition, the

⁷ A Participant may also respond with an "Accepted without posting" status, which is described in more detail in the RTP Message Flows.

RTP System provides a Message Status Report called a “Message Receiver Confirmation” Message (fifth Leg), notifying the Payee’s FI that the Response has been received within the time-out period and the transaction has been settled allowing the Payee’s FI to make the Payment immediately available to the Receiver.

In addition to the Credit Transfer Message, the Payer may wish to send extensive remittance information about the Payment to the Payee. If such information does not fit into the limited remittance fields within the Credit Transfer message, the Payer’s FI may send a separate Message called a Remittance Advice⁸ (ISO 20022 message ID = remt.001) Message to the Payee’s FI to provide the extensive remittance information to the Payee.

The Payer’s FI will make sure that the Remittance Advice Message properly references the Credit Transfer Message by including the Credit Transfer’s unique ID in the proper reference field in the Remittance Advice. Multiple Remittance Advice Messages may be sent in relation to a single Credit Transfer. All of the same formatting, process, and business rule validations are performed by the RTP System and both Participants. See Figure 5.

The Payee may optionally send a Message confirming receipt of funds and providing additional information. For example, the Payment Acknowledgement by Receiver (ISO 20022 message ID = camt.035) Message may include a note or information from the Payee such as:

- “Thank you for your payment. Goods have shipped with tracking number: 123456789.”
- “Your payment has been received and credited to your account. Your available credit following payment is \$5,000.00.”
- “Invoices ABC-123, XYZ-789, and RST-456 have been paid.”

All of the same formatting, process, and business rule validations are performed by RTP and both FIs.

⁸ Remittance Advice messages are currently optional for Participants to support.



Figure 5. Credit Transfer Messages followed by Optional additional Payment-related Messages.

The Payee's FI will make sure the Payment Acknowledgement by Receiver Message contains a reference to the Unique ID contained in the original Credit Transfer so the Payer's FI may match it to the appropriate Credit Transfer in their system.

Note that in this Transaction, the Participant receiving the Credit Transfer is now also the Message Sender as they are sending the Payment Acknowledgement Message and other optional additional Messages.

Figure 5 also shows the use of a Request for Information Message in relation to the Credit Transfer. More information on RFI Events is included in section 3.4.

3.2 FI-to-FI Credit Transfer Event (planned for future use)

This Payment Message has a very specific use internal to the RTP network of Participants. If a Sending Participant's Current Prefunded Position becomes low during hours when the Fedwire Funds service is not operating, another Sending Participant may send a Payment to the first Sending Participant using this (ISO 20022 message ID = pacs.009) Message. The Message Flow looks exactly the same as the Credit Transfer (see Figure 4); however, none of the Payment-related Messages (e.g., RFPs, Remittance Advice, etc.) are allowed to be used in conjunction with this Payment.

3.3 Request for Payment Event

The Request for Payment Event describes a scenario when a Payee wants a Payer to send funds that are due to them. A Request for Payment (RFP) Message (ISO 20022 code = pain.013) is used to begin this multi-step Event. In response to an RFP, funds may be sent with a Credit Transfer. Alternatively, a Response to Request for Payment (RFPR) Message (ISO 20022 code = pain.014) may be sent⁹ to indicate the nature of the coming Payment (partial payment, overpayment, or payment scheduled for a future date), which would then be followed by a Credit Transfer Message.

The RFP Event begins when the Payee's FI receives instructions from the Payee via one of the Participant's secure¹⁰ Channel Applications, to transmit an RFP Message for the amount due from a Payer. The Payee's FI may perform account authorization and transaction verifications before sending the RFP Message to the RTP System.

The RTP System performs a series of formatting, process, and business rule validations of the RFP Message and routes it to the Payer's FI.¹¹

The Payer's FI then replies with the required Response (pacs.002) confirming delivery of the Request to the Payer or indicating a reason why the Request could not be delivered.

⁹ New feature as of Release 2.9 expected in early 2020.

¹⁰ All Messages originate and terminate within a trusted bank network that meet stringent security and privacy protection standards.

¹¹ A description of what happens if the Message fails RTP validation is covered in detail in the *REAL-TIME PAYMENTS SYSTEM MESSAGE FLOWS* document or the *REAL-TIME PAYMENTS SYSTEM INTERFACE GUIDE*.

Currently, the RTP System only passes the Response to the Payee's FI, confirming that the RFP has been successfully delivered. Beginning with the 2.9 release in 2020, the RTP System will also provide the Payer's FI a confirmation message (similar to the fifth leg of the Credit Transfer Message Flow), confirming that RTP has received its response within the "time-out period" and that the Payee FI can make the RFP available to their customer.

If the Payee requires additional information be sent in relation to the RFP message so that the Payer knows the reason why the payment is being requested, the Payee may optionally instruct the Payee's FI to initiate a Remittance Advice Message to the Payer's FI with the additional information (e.g., complete invoice information). The Payer's FI then passes that information along to the Payer via their Channel Application. See Figure 6.

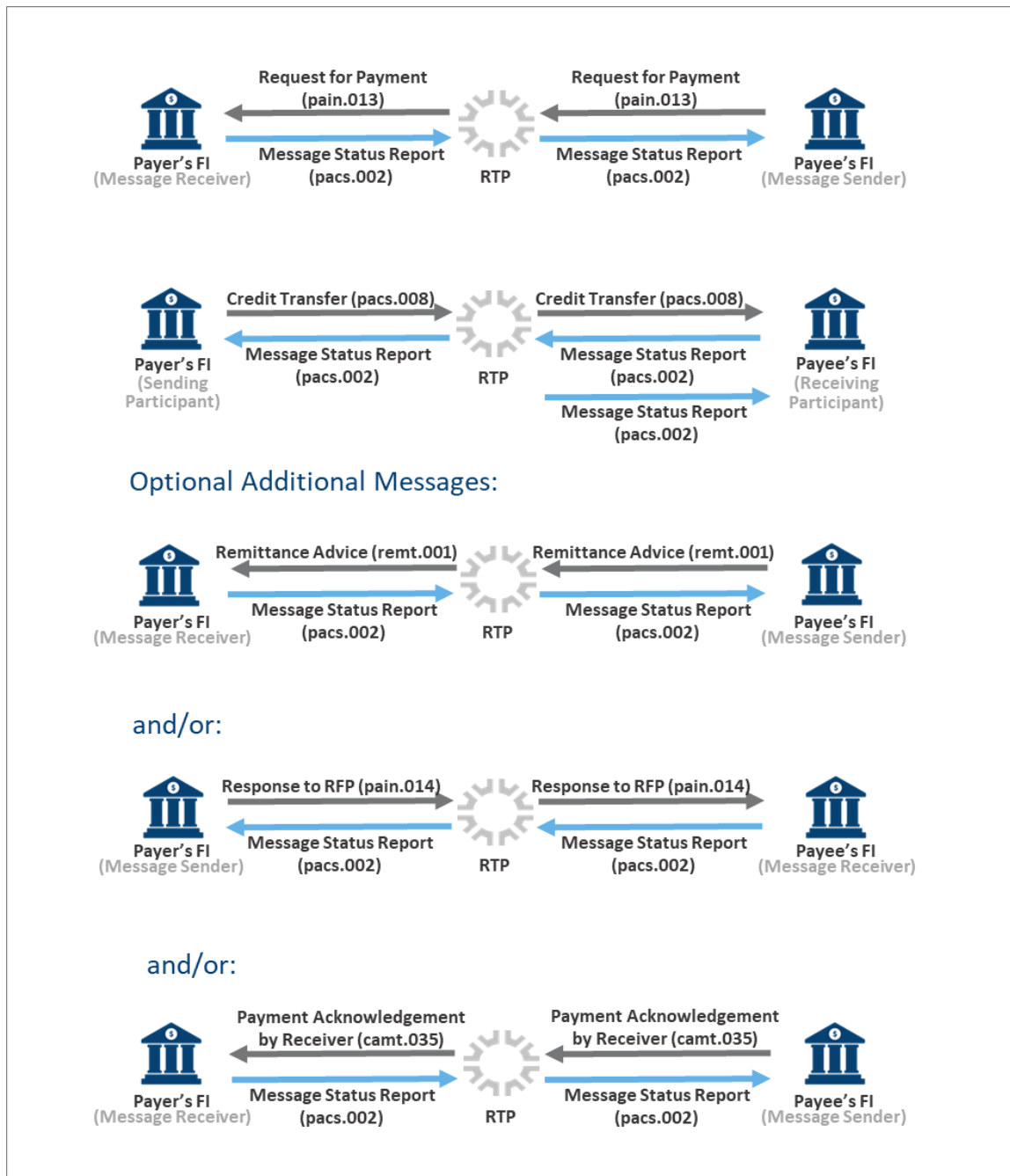


Figure 6. Affirmative reply to a Request for Payment Event consists of two to four Transactions.

The Payer, having been notified that the Payee is requesting funds, may initiate instructions to (a) make the Payment with a Credit Transfer Message, (b) inform the Payee that a Payment is scheduled or planned to be paid in full or in part with a Response to RFP Message, or (c) indicate that the Payment will not be made with a Response to RFP Message.

- Affirmative response with Credit Transfer Only – See Figure 6. If the Payer wishes to initiate a Payment, they instruct the Payer's FI to send a new Credit Transfer Message to the RTP

System which validates the Message and routes it to the Payee's FI for processing. The Credit Transfer Message must be submitted with a reference to the Payment Information ID found in the RFP Message that requested the funds. After processing the Payment, the Payee's FI may optionally send a Payment Acknowledgement by Receiver Message. If so, it will follow the same steps and flow as described in the Credit Transfer Event above (see section 3.1).

- Affirmative Response with RFPR – See Figure 6. In response to the RFP, if the Payer wishes to inform the Payee that a full Payment or a partial Payment is scheduled, they will instruct the Payer's FI to initiate a Response to the RFP that includes the amount and date the Payment will be made. This is a way of acknowledging the RFP so the Payee doesn't continue sending further RFPs. It also helps the Payee better understand their expected cash flow.

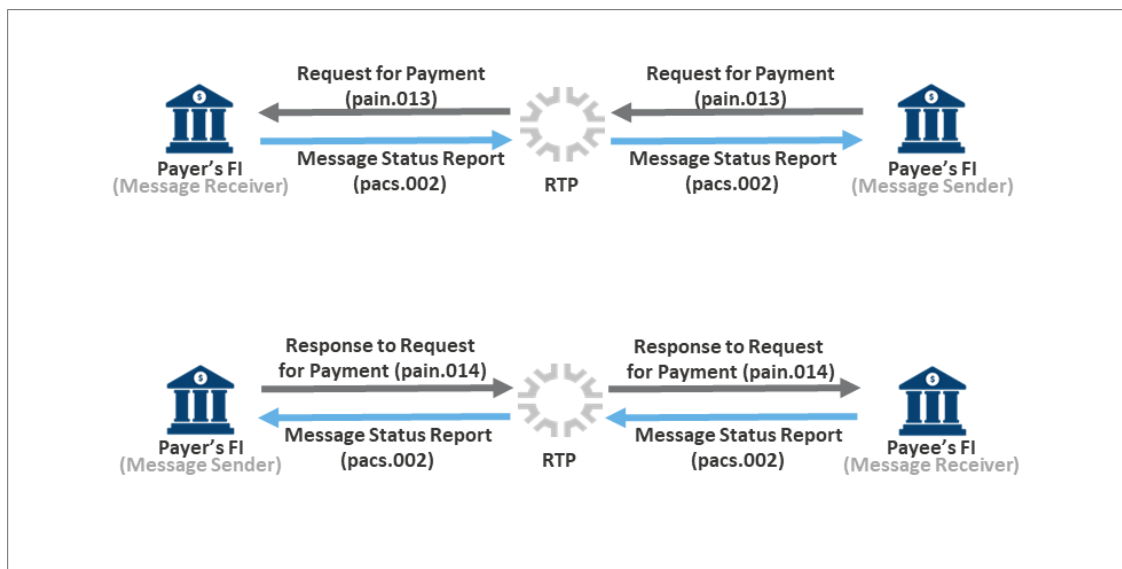


Figure 7. Negative Reply to an RFP.

- Negative Response – See Figure 7. If the Payer indicates that a Payment will not be made in response to the RFP, or if the Payer's FI no longer makes Payment of an RFP available to the Payer, a Response to RFP Message will be submitted by the Payer's FI indicating that a Payment will not be made in response to the RFP and including a reason code describing why this is the case. The Message will reference the Payment Information ID from the original RFP so the Payee's FI can match it to the original RFP.

The Response to RFP Message is initiated by the Payer's FI as the result of (a) one of the Affirmative or Negative Responses above, or (b) internally, if it is known that the ability to make RTP Payments is not available to the Payer. The RTP System performs a series of formatting, process, and business rule validations before the Message is routed to the

Payee's FI. The RTP System then awaits a response for the "time-out period".¹² The Payee's FI receives the Message from RTP and conducts a number of its own validations to ensure its correctness and security.

For all validated Messages, the Payee's FI sends the RTP System a Message Status Report indicating the Response to RFP Message had been successfully received.

The RTP System validates the Message Status Report Response and if it is received within the time-out period and formatted properly, passes it along to the Payer's FI.

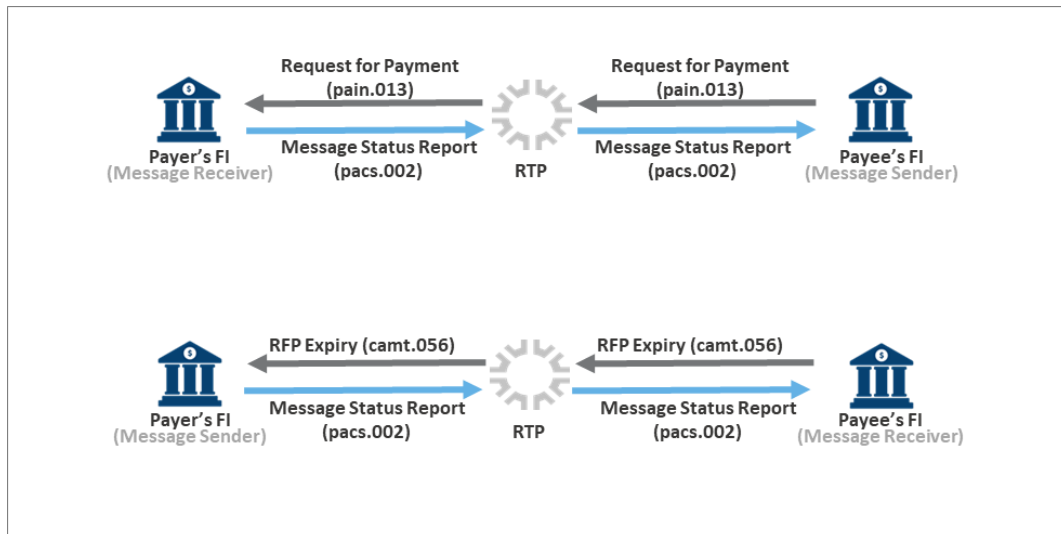


Figure 8. Payee FI sends RFP Expiry.

Beginning with the 2.9 release in 2020, if the Payee wishes to cancel the Request for Payment, they can instruct the Payee's FI to submit an RFP Expiry message (ISO 20022 message ID = camt.056). The Payee may wish to "expire" an RFP if they have received payment for the particular debt or invoice through another payments system or channel (e.g. a consumer pays a bill via a biller's website). The RFP Expiry message follows the same flow and steps as the Request for Return message as described within the section 3.5 below.

3.4 Request for Information Event

There are times when a Payee receives a Payment but cannot identify exactly what the Payment is for, so more information is needed from the Payer to determine how to handle it (e.g., an invoice number, Payer's name, discrepancy in amount, etc.).

¹² A description of what happens if the Message fails RTP validation is covered in detail in the *REAL-TIME PAYMENTS SYSTEM MESSAGE FLOWS* document or the *REAL-TIME PAYMENTS SYSTEM INTERFACE GUIDE*.

The Request for Information (RFI) Message (ISO message ID = camt.026) is used when a Payee, following the completion of a Credit Transfer, needs to obtain additional information from the Payer. See Figure 9.

The Payee's FI, after authenticating the Payee on the use of their Channel Application, will send an RFI Message to the RTP System. The RFI Message will reference the original Credit Transfer Message's Instruction ID to allow the Payer's FI and the Payer to associate this RFI with the appropriate Credit Transfer.

The RTP System performs a series of format and business rule validations on the Message and if successful, sends the RFI to the Payer's FI to make available to the Payer. The Payer's FI, having received the RFI must respond with a Message Status Report confirming delivery of the message to the Payer or rejecting it if for example, the Payer's account is closed.

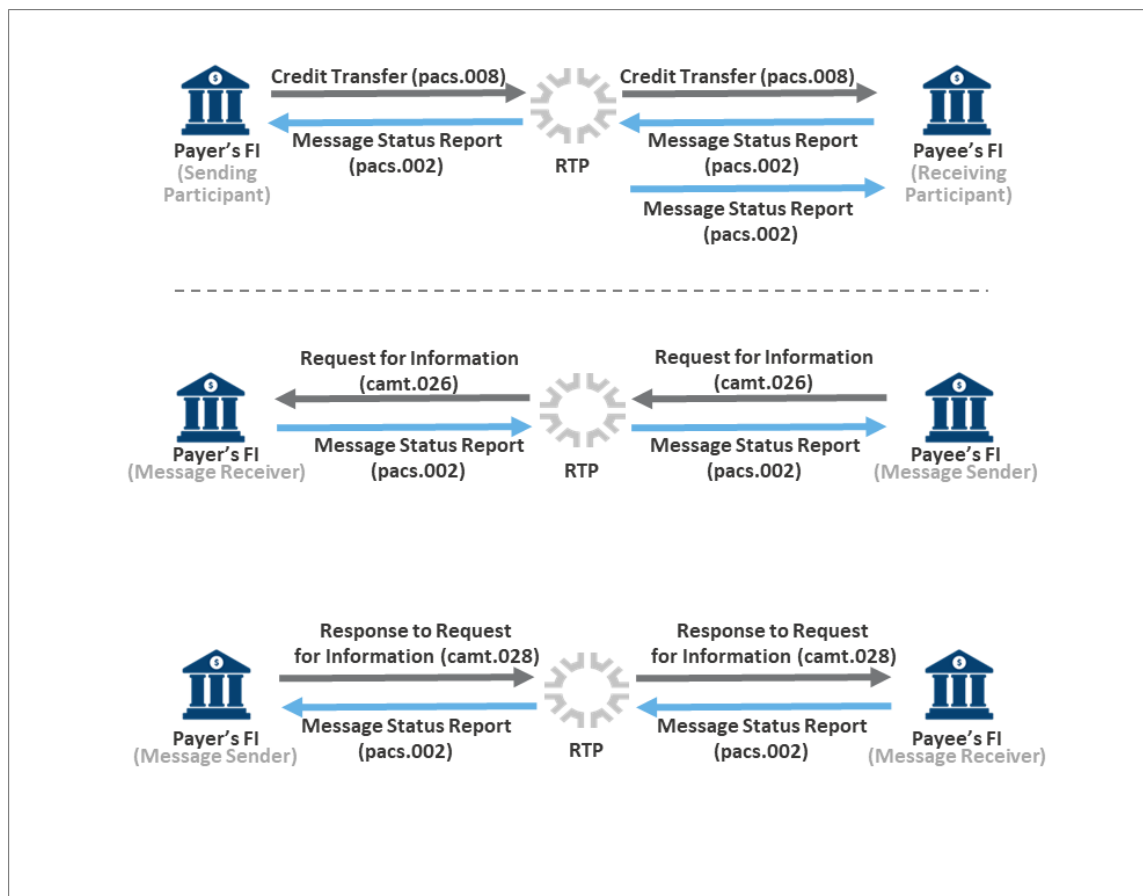


Figure 9. Directional Message Flow for RFI issued by a Payee after a Payment has been received.

The Payer, having been notified that the Payee is requesting additional information, may either (a) provide the information to the Payer's FI and initiate instructions to reply to the Payee, (b) indicate that the requested information is not available, or (c) ignore the RFI and do not reply with the information requested. See Figure 9.

- If the Payer decides to respond to the RFI, then:

- The Payer instructs the Payer’s FI to send a Response to the RFI (RFIR) (ISO code = camt.028) Message along with the information requested by the Payee. The Payer’s FI will reference the RFI as well as the original Credit Transfer using the appropriate fields within the Message.
- This Message is sent back to the Payee’s FI via the RTP System and the Payee’s FI then informs the Payee and makes the response data available using its Channel Application.
- The Payee’s FI then sends a Message Status Report back to the Payer’s FI via the RTP System.
- If the Payer indicates on the Channel Application that they do not want to reply to the requested information or if the Payer’s FI no longer makes the RFI available to the Payer, the Payer’s FI may optionally send a RFIR Message following the same flow described in the positive case above, but with an indicator in the Message that notifies the Payee’s FI (and Payee) that information will not be sent in response to the RFI.

Beginning with the 2.9 release in 2020, the RFI Message can also be used in a number of other circumstances, including:

- Payer requests information related to a Request for Payment;
- Payer’s FI requests information from the Payee’s FI related to the posting of a Credit Transfer that was accepted or accepted without posting (beneficiary claims non-receipt); or
- Payee’s FI requests information from the Payer’s FI related to the presentment of an RFP that was previously accepted.

3.5 Request for Return of Funds Events

The Request for Return of Funds Event begins after a successful Credit Transfer occurs. If the Payer has made an error in its Payment or has claims a Payment was unauthorized, or if the Payer’s FI has had a processing issue that caused errant Payments to be sent, the Payer’s FI may submit a Request for Return of Funds (RFR) (ISO message ID = camt.056) Message to attempt to recover the funds.¹³ See Figure 10.

¹³ All RTP Credit Transfers are final and irrevocable once settled. Credit Transfers are settled upon the system’s processing of the Payee’s FI’s positive Response message. The Request for Return of Funds message is a request to the Payee’s FI to open an investigation into whether or not the funds can be returned. There is no guarantee that funds will be recovered.

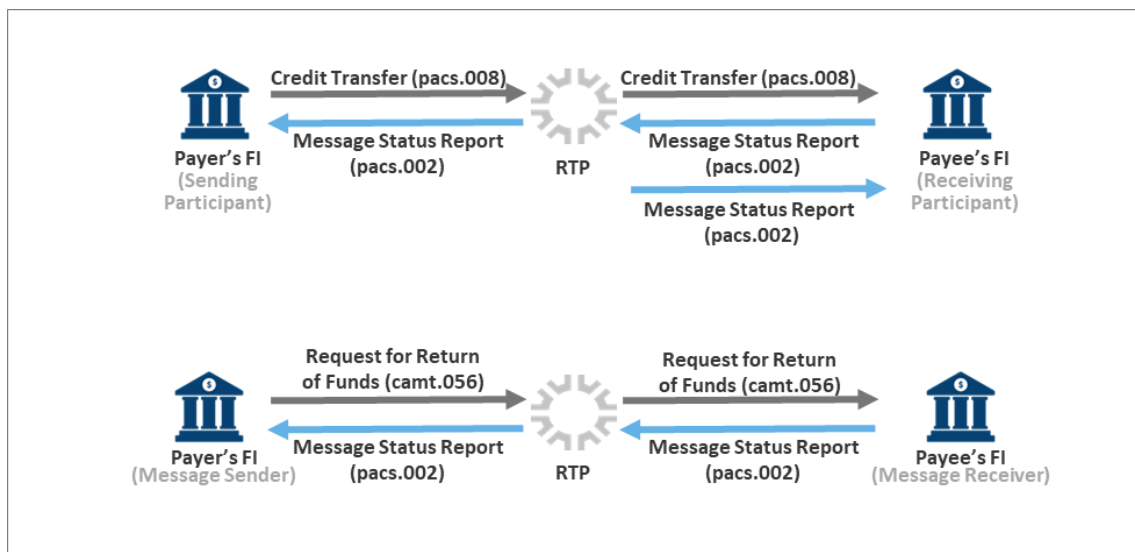


Figure 10. RFR initiated after completion of a Credit Transfer.

A RFR Message is generated by the Payer's FI and passed to the RTP System. The Payer's FI will reference the original Credit Transfer Message's Instruction ID within the RFR so the Payee's FI and the Payee can match this request to one of their previously received Payments. The RTP System performs a series of format and business rule validations on the Message and if successful, passes the RFR to the Payee's FI.¹⁴

Having received the RFR, the Payee's FI must respond with a Message Status Report confirming that the RFR was received and processed or indicating a reason why the RFR was unable to be processed (e.g., original transaction could not be found). The Payee's FI is expected to then determine if funds can be returned to the Payer. RTP Operating Rules state that the Payee's FI must send its Response to Request for Return of Funds (RFRR) (ISO message ID = camt.029) Message within ten business days of receiving the RFRRs, except for RFRR messages that are sent due to claimed fraud or breach of a Request for Payment warranty. With respect to such RFRR Messages, the Receiving Participant may take longer than ten business days to send a RFRR message to allow time for the Receiving Participant to investigate the claimed fraud or breach of warranty. In such situations the Receiving Participant is expected to promptly perform its investigation and send its RFRR upon completion of its investigation.

Once the Payee's FI has determined whether they will return the funds or not, the Payee's FI transmits the appropriate Message(s) to the RTP System for transmittal back to the Payer's FI:

¹⁴ A description of what happens if the Message fails RTP validation is covered in detail in the *REAL-TIME PAYMENTS SYSTEM MESSAGE FLOWS* document or the *REAL-TIME PAYMENTS SYSTEM INTERFACE GUIDE*.

- If the funds will be returned in full, then the Payee’s FI generates two Messages: An RFRR Message indicating the Payee has agreed to return the funds in full and a Credit Transfer Message with the amount of funds being returned. See Figure 11.

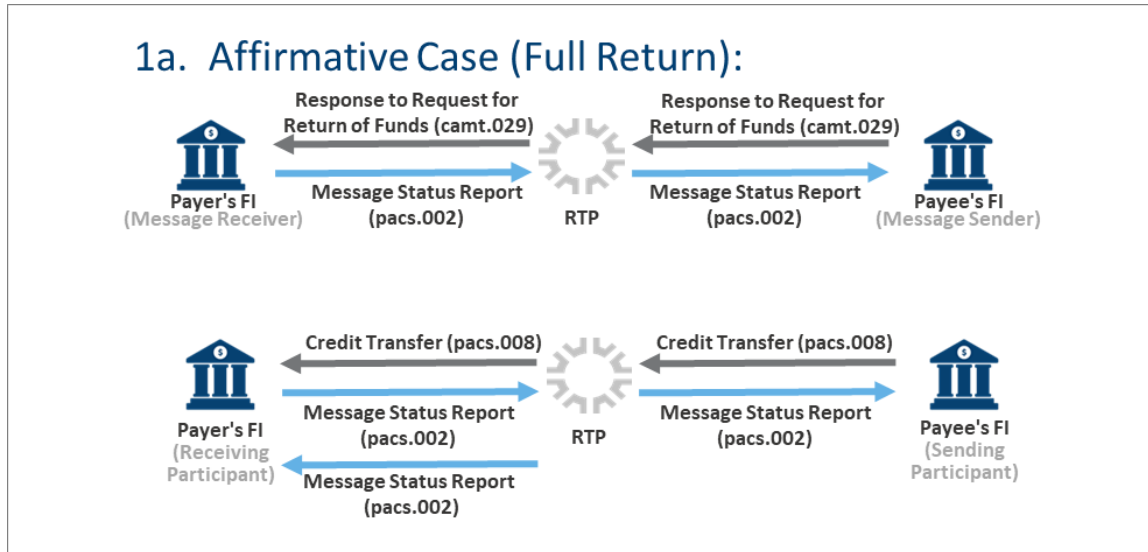


Figure 11. Full return of requested funds.

- If the funds will be only partially¹⁵ returned, then the Payee’s FI generates two Messages: A RFRR Message indicating the Payee (or Payee’s FI) has agreed to return some of the funds and a Credit Transfer Message with the amount of funds being returned. See Figure 12.

¹⁵ Available in 2020.

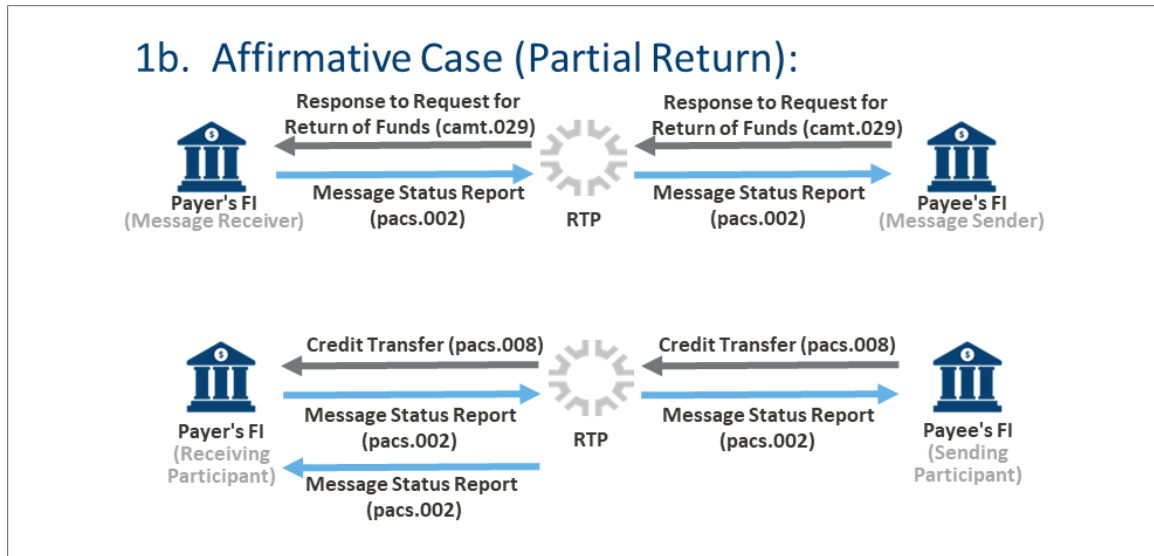


Figure 12. Partial return of requested funds.

- If the funds will be either fully or partially¹⁶ returned via a method external to the RTP System (e.g., ACH, Fedwire or CHIPS) then the Payee’s FI generates a RFRR Message indicating the Payee has agreed to fully or partially return the funds and references a unique ID associated with the external payment method used.¹⁷ See Figure 13.

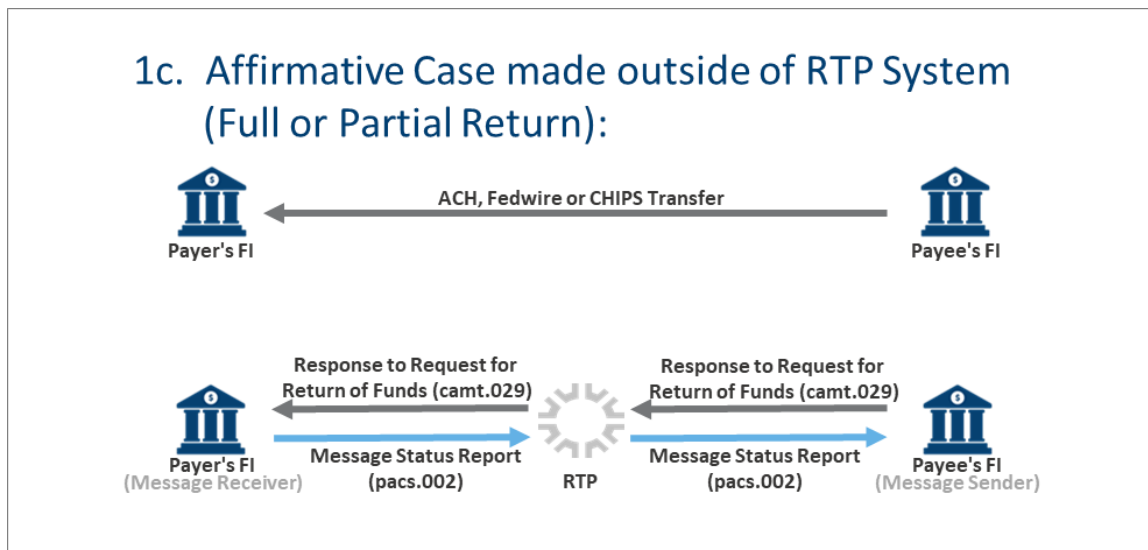


Figure 13. Return of funds made outside of the RTP System.

¹⁶ Available in 2020.

¹⁷ Available in 2020.

- If the Payee decides not to return the funds or does not respond within the investigation timeline, the Payee's FI will generate a RFRR Message indicating the Payee has denied the Payer's request. See Figure 14.

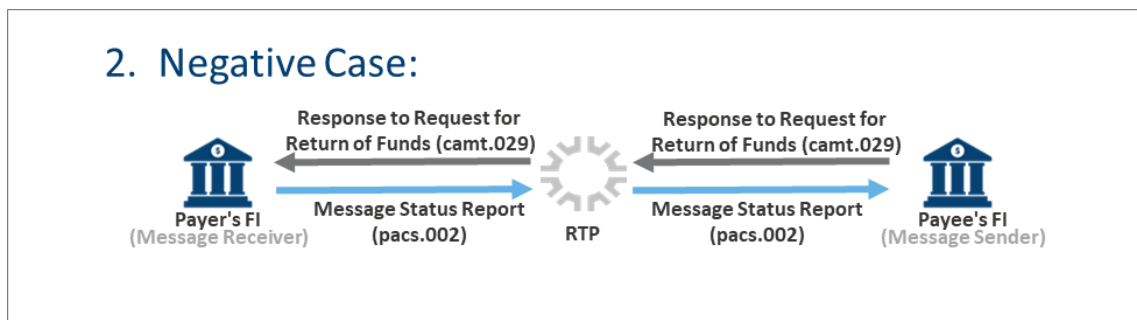


Figure 14. Payee decides no funds will be returned.

In all cases, the Payer's FI will include a reference to the original RFR's unique ID in the Response to RFR and the RTP System performs a series of formatting, process, and business rule validations on the Messages and routes them to the Payer's FI.

In the positive case in which funds are being returned with an RTP Credit Transfer, the Payee's FI must include a reference to the original Credit Transfer's unique ID and processing date in the Credit Transfer that is being used to return the funds.

4 RTP ADMINISTRATIVE MESSAGES

Administrative Messages are used for reporting Message syntax and validation errors, system sign on/off, communicating directly with Participants via System Notification Messages, and to verify Participant and RTP availability. There are two types of Administrative Messages: Control Messages and System Notification Messages.

4.1 Control Messages

In order for a Participant to be available on the RTP System, they must first transmit a Sign-on Request (ISO 20022 message ID = admn.001) Message to RTP. If RTP successfully processes the Sign-on Request Message, it will reply with a Participant Sign-on Response (ISO 20022 message ID = admn.002) Message indicating the Participant has been successfully signed-on to RTP. The RTP System then makes all other Participant endpoints aware that the Participant is now available to send and receive Messages by sending a Broadcast System Notification Message (see section 4.2).

If a Participant needs to sign-off from the RTP System, for example to perform system maintenance, the Participant must send a Participant Sign-off (ISO 20022 message ID = admn.003) Message to the RTP System. If the RTP System successfully processes the Sign-off Message, it will reply with a Participant Sign-off Response (ISO 20022 message ID = admn.004)

Message indicating the Participant has been successfully signed-off of RTP and notify all other Participant systems the Participant is no longer available to accept any RTP Messages.

The RTP System uses Echo Messages to determine if a Participants connection is still available and the Participant is responding to Messages. If a Participant system hasn't sent or responded to any Messages over a 30 second interval, the RTP System will send that Participant an Echo Request (ISO 20022 message ID = admn.005) Message and await a response from the Participant to determine if that Participant is still connected and responding to Messages. If the Participant's system is online, it must reply with an Echo Response (ISO 20022 message ID = admn.006) Message. If RTP sends three successive Echo Requests Messages and the Participant does not respond, RTP will consider that Participant as not available to transact on the RTP System and notify all other Participant endpoints via an System Notification Message (see section 4.2) that the Participant is not available. The Participant may also optionally send Echo Request Messages to the RTP System to ensure that the RTP System is still available.¹⁸

Table 5 describes each of the corresponding Request and Response Control Messages and indicates the ISO 20022 Message Code used by the RTP System.

Request Messages			Response Messages		
ISO	Name	Usage	ISO	Name	Usage
admn.001	Participant Sign-on Request	Sent by Participants to request sign-on to RTP.	admn.002	Participant Sign-on Response	Sent by RTP as a response to the Sign-on Request.
admn.003	Participant Sign-off Request	Sent by Participants to request sign-off from RTP.	admn.004	Participant Sign-off Response or System Notification Message	Sent by RTP as a response to the Sign-off Request or to notify Participants of an important issue that must be addressed.
admn.005	Echo Request	Sent by Participants or RTP to check responsiveness during a period of no transaction activity.	admn.006	Echo Response	Sent by Participant or RTP to confirm availability.
admn.007	Database Availability Report Request	Request list of unavailable Participant IDs.	admn.008	Database Availability Report Response	Provides list of unavailable Participant IDs.

Table 5. RTP Control Request and Response Messages.

¹⁸ Note that Echo Messages are sent at the "Connection" level, not at the Participant level. If you plan to connect to the RTP System via a Third-Party Service Provider, it will be the Third-Party Service Provider's platform that will respond to Echo Request Messages. For more information, please reference the *REAL-TIME PAYMENTS SYSTEM INTERFACE GUIDE*.

4.2 System Notification Messages

The RTP System sends information relevant to the operation of the RTP System to Participants using System Notification Messages (SNM). There are two types of SNMs:

- Broadcast SNMs are sent to all Participants. For example, as a direct result of an RTP System event like a Payee's FI becoming unavailable or as a predefined broadcast Message generated by the System Operator.
- Notification SNMs are sent to a specific Participant for liquidity related events, notification of Reconciliation Window Cutover, or if the System Operator wishes to send a free format Message to an individual Participant.

An SNM Message does not require a response (Message Status Report).

All SNMs use ISO message ID = admi.004 but have different Event Codes depending on the reason for the SNM. Table 6 describes the circumstances of each SNM Event.

Event Code	Name	Usage
960	Connectivity Status Broadcast	Informs all Participants of a change in the status of a Participant's default receive Connection. This broadcast Message will be sent if the RTP System detects that a Participant's network connectivity becomes unavailable or is restored from an unavailable status.
971	System Status Broadcast	Informs all Participants if the RTP System changes its status to either suspended or available.
972	Participant Suspend Broadcast	Informs all Participants if a Participant's status is changed to suspended or has returned to normal.
975	Settlement Individual Transaction Limit Change Broadcast (SITL)	Informs Participants that the system-wide, maximum permitted amount for any Payment type has been changed (i.e., the system wide limit for Credit Transfers has been changed). It should be noted that the RTP System only permits Credit Transfer Payments and as such the SITL will always be the same as the STL.
976	Security Transaction Limit Change Broadcast (STL)	Informs Participants that the system-wide, maximum permitted amount for a Payment type has been changed (i.e., the system wide limit for Payment transactions). It should be noted that the RTP System only permits Credit Transfer Payments and as such the STL will always be the same as the SITL.
981	Free Format Broadcast or Notification	The RTP System has the ability to allow the System Operator to send a Message to either one or all Participant(s). The System Operator decides whether the Message is for all Participants or a single Participant when the Message is created. For a Message to a single Participant, the Message class shall be 'Notification'. If the Message is meant for all Participants, the Message class shall be 'Broadcast'.
982	Participant Status Broadcast	The RTP System sends a notification to all Participants as a result of a Participant sending a Sign-on or Sign-off message (either direct or via TPSP).
993	Available Prefunded Balance Warning Notification	This Message informs a Participant that their Available Prefunded Balance has either: dropped below the established Low Watermark threshold or has returned to a normal level (Normal Watermark) following a Low Watermark warning. It should be noted that if the Low Watermark notification is ignored, it could result in a Payment transaction being rejected due to insufficient funds.
994	Available Prefunded Balance Breach Notification	This Message informs a Participant that a transaction was rejected due to their Current Prefunded Position being insufficient to cover the Payment transaction. In such a scenario the Payment is rejected and in addition to the pacs.002 rejecting the Payment, this advice is also sent so that the Participant's system so that operations staff can alert their Treasury department to provide required supplemental funding.
996	Prefunded Requirement Change Notification	This Message informs a Participant that their Prefunded Requirement has been changed.

Event Code	Name	Usage
998	Prefunded Balance Change Notification	This Message informs a Participant or Funding Agent that their Current Prefunded Position has been changed as a result of Supplement Funding or a Disbursement.
999	Reconciliation Status Notification	RTP sends an automated notification to all Participants when a Reconciliation Window has been closed and a new one opened. The notification includes: <ul style="list-style-type: none"> • The Previous (Closed) Reconciliation Window ID • The New (Open) Reconciliation Window ID • The Opening Prefunded Position for the Participant FI as at the start of the New Reconciliation Window • Number and Value of credit transfers sent and received by the Participant during the prior Reconciliation Window ID • Number and Value of supplemental funding or Disbursements performed by the Participant during the prior Reconciliation Window ID

Table 6. SNM Event Codes and their usage.

5 SETTLEMENT OVERVIEW

In order to achieve immediate funds availability with no risk to the Receiving Participant, RTP Payments are immediately settled between the Payer's FI and the Payee's FI by the RTP System. This is accomplished through the use of an external Prefunded Balance Account held by the Federal Reserve Bank of New York. The Account is jointly owned by all Funding Participants and Funding Agents and TCH is the sole agent of the Account.

Each Participant that is able to send Credit Transfers must provide initial funding as determined by The Clearing House (known as a Participant's Prefunded Requirement) to the Prefunded Balance Account. Participants that only receive Payments do not have a Prefunded Requirement. Please refer to the *RTP Prefunded Requirement for Sending Participants* document on the TCH website for more information regarding required prefunding amounts.

A Participant may either: Prefund and manage their liquidity position itself, or enter into an arrangement with a Funding Agent to fund on its behalf.

5.1 Funding Agents

A Funding Agent is a financial institution that enters into an arrangement with one or more Participants to provide funding for the Participant's Prefunded Requirement and may also provide services to monitor the Participant's liquidity position, add Supplemental Funds to the Prefunded Balance Account as needed and initiate Disbursements of funds from the Prefunded Balance Account when appropriate.

5.2 Settlement

As Credit Transfer Transactions are completed, the RTP System will immediately decrease the Current Prefunded Position of the Payer's FI and increase the Current Prefunded Position of the Payee's FI, thus immediately settling the transaction.

While each Participant's Current Prefunded Position is permitted to drop below the TCH established Prefunded Requirement during a given Reconciliation Window, the Current Prefunded Position is not permitted to drop below \$0.00. If a Transaction would cause a Payer's FI's Current Prefunded Position to be less than zero, the Transaction will be rejected by the RTP System.

Participants (or their designated Funding Agent) may provide Supplemental Funding and/or request a Disbursement during normal Fedwire Funds hours (9:00 PM to 6:00 PM ET). Disbursement requests will be subject to certain business rules that ensure each Participant's Current Prefunded Position remains at a minimum level. Participants (or their Funding Agent) may view their Current Prefunded Balance at any time and initiate Disbursement Requests using the RTP Management Portal (a browser based administrative portal that is accessed over the internet using a secure VPN).

More information on RTP Settlement may be found in the *RTP Prefunded Settlement Model for Funding Participants* document.