



The Bank of Russia Standard

STO BR NPS-1.0-2017

FINANCIAL MESSAGES IN THE NPS

GENERAL TERMS

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Preamble

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Introduction

This Standard contains the main implementation objectives, principles and recommendations for usage of universal rules on financial messages composing for funds transfer in the National Payment System (hereinafter – NPS).

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FINANCIAL MESSAGES IN THE NPS

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1. Scope

This Standard is recommended for organizations usage when sending financial messages related to funds transfer in the Russian Federation.

This standard is intended to:

funds transfer participants (banks and their customers);

developers of information and program software, information systems.

Provisions of this Standard are applied on a voluntary basis, unless regulatory acts of the Bank of Russia or the terms of contracts make some provisions obligatory.

2. Terms and definitions

ISO 20022 Standard	– International Standard ISO 20022 "Financial Services. Universal financial industry message scheme", Technical Regulation and Metrology Federal Agency accepted the National Standard of the Russian Federation GOST R ISO 20022-1-2013 "Financial Services. Universal financial industry message scheme. Part 1. Metamodel"
ISO 20022 NPS standards	– a set of the Bank of Russia standards, including this Standard, which reflect market practice of NPS participants and are fully compliant with ISO 20022 standard, taking into account the legislative, regulatory framework of NPS
XML-schema	– language describing XML-document structure
XSD-file	– file with a *.xsd extension containing the XML-schema
OCL	– object constraint language, establishing formation, structural and logical controls rules
XSLT	– language for converting XML-documents from one XML-schema to another.

3. Unified financial messages formation objectives

In the financial industry various solutions for financial (payment) messages are used for client-to-bank level, bank-bank level, and furthermore they are not fully in line with potential opportunities of modern technologies for straight through processing. Examples:

organizations with bank accounts in several banks are forced to support multitude messaging decisions that reflect specifics of particular banks;

banks in a competitive environment for attracting customers should also provide for redundant solutions designed for existing differences in practice of large customers;

for transnational organizations - funds transfer participants, the lack of a unified financial (payment) messages at the national level, consistent with international standard, is deterrent to their activity development in the country. The implementation for the universal rules on financial (payment) messages composing based on ISO 20022 standard gives the possibility to cut costs of multiple solutions support for banks and their customers as well as to provide readiness of NPS customers to participate in new infrastructure projects.

At the same time, usage of universal rules on financial (payment) messages composing assures the use of unified document attributes, messages in transaction chain related to funds transfer and reporting.

4. Methodology for financial messages standardization

Modern development of funds transfer processes standardization is based on usage of the ISO 20022 standard "Financial Services. Universal financial industry message scheme", adopted by the International Standard Organization.

The ISO 20022 standard has gained wide recognition due to its methodology of designing exchange schemes and e-messages formats, which allows to unite different views on financial industry, involving both experts in finance and information system vendors in the development process.

The ISO 20022 standard includes four levels of process modelling (see table 1).

Table 1. ISO 20022 standard levels

Level name		Level assignment
1	Review	List and structure of financial processes formation, definition of the objectives of the considered area of activity and related processes
2	Conceptual	Formalization of the substantive part of the considered area of activity, definition of communication and interaction requirements, connections and messages sequence requirements for selected processes
3	Logical	Creation of used messages description without connection to technologies
4	Physical	Creation of used messages description with connection to technologies

In financial messages designing process based on the ISO 20022 Standard, processes for financial industry different areas, including payments, have been investigated and formalized in different countries, also possible types of participants in these processes, possible schemes for their interaction, and the composition of data transmitted at each stage have been defined too. On the basis of this information, international business processes models of the financial industry, as well as schemes and formats of electronic messages used in them, have been established.

The authorized organization for the guiding of the ISO 20022 (the Registration Authority) uploads and maintains developed documentation and necessary materials on the ISO 20022 official website (www.iso20022.org) for the public access. The website presents two main information sections: catalog and electronic repository.

The catalog includes:

- processes;
- data dictionary;
- message schemes;
- message descriptions.

The e-repository includes:

- models;
- data store;
- elements description;
- message schemes description.

The ISO 20022 standard ideology includes several levels of its implementation.

The approach "from general to the specific" as well as development of multilevel usage guidelines of the standard is applied. Having a single common international catalog and repository of the ISO 20022 standard, users of this Standard could apply it to narrower, specific activities, setting additional internal restrictions to the application of the existing standard.

Financial message, generated on the ISO 20022 methodology for a specific field task of a single organization in any certain country, will be interoperable with the practice of other organizations using the ISO 20022 methodology, IT systems not only at the country level but also at the international one.

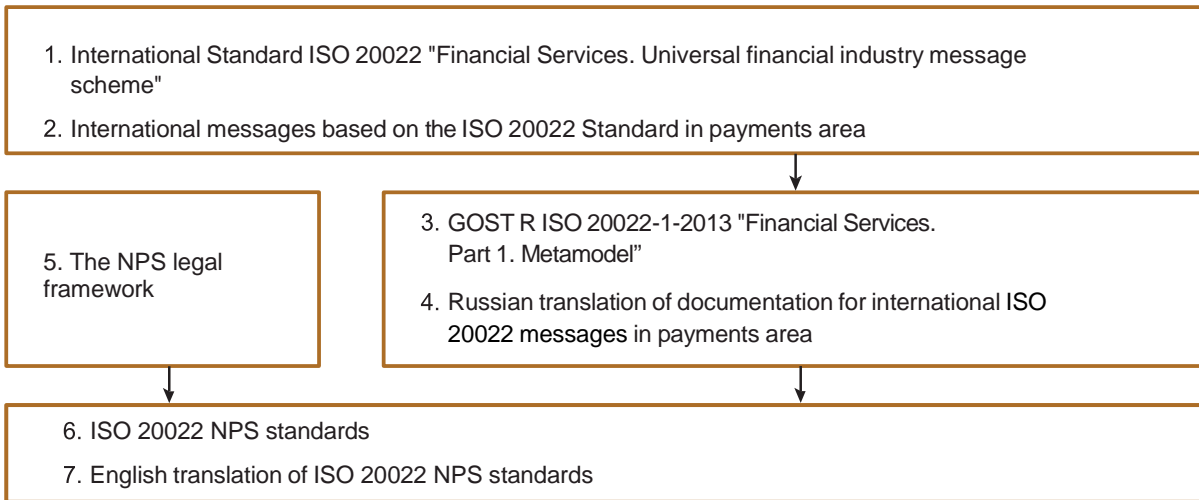
Table 2. General ideology of the ISO 20022 standard development

Standard levels	1	ISO 20022 methodology (rules for standard-setting)															
	2	Catalog, Repository of the ISO 20022 – knowledge base (data dictionary, process models, etc.)															
	3	International messages in the area of payments								International messages in other areas (securities, trade operations, foreign exchange operations, payment cards transactions)							
	4	Country group messages (EAEU)				Country group messages (SEPA, TARGET-2 etc.)				Country group messages				Country group messages			
	5	NPS unified messages		unified country messages		unified country messages		unified country messages		unified country messages		unified country messages		unified country messages		unified country messages	
	6	CBR PS messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages	organization messages

5. Usage recommendations for universal rules of financial (payment) messages composing

It is recommended to use universal rules for financial messages composing in the NPS developed according to ISO 20022 methodology and available on the official website of the ISO 20022 standard. The implementation of these messages in the NPS includes publication of a set of the Bank of Russia standards both in Russian and English.

Figure 1. Standards and the NPS legal framework



ISO 20022 NPS standards, developed on the basis of the international standard ISO 20022 for payments, taking into account the NPS legal framework, define the list (classifier) of the applicable message elements, funds transfer models on the initiative of Debtor, Creditor as well as other connection models between funds transfer participants in the NPS.

6. Core principles for implementation of universal rules of financial messages composing in the NPS

6.1. NPS messages elements classifier

Financial messages terms and elements definitions formed on the basis of the ISO 20022 Standard used in the national practice are mandatory for their inclusion to NPS messages attributes Classifier.

This Classifier is a basis for the development of an interagency classifier of uniform message elements used in various areas of financial and economic activity.

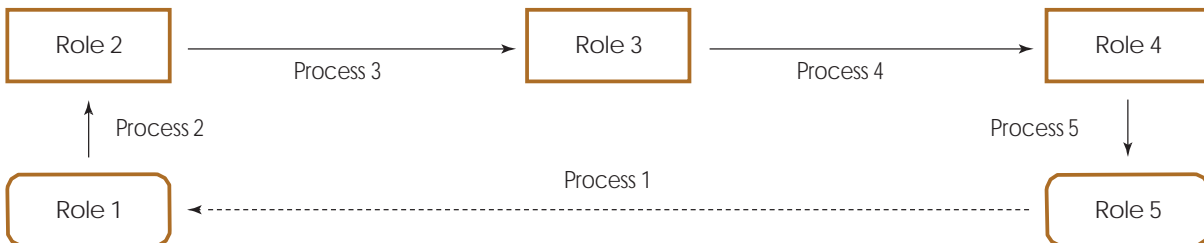
Table 3. Form of NPS messages elements Classifier

Term (elements)		Definition (description)	Element tag	Data type
Russian name	English name (Term Code)			
Elements				

6.2. ISO 20022 NPS standards review level

At the review level, connection model in the NPS is presented, which includes description of processes and roles used within this model.

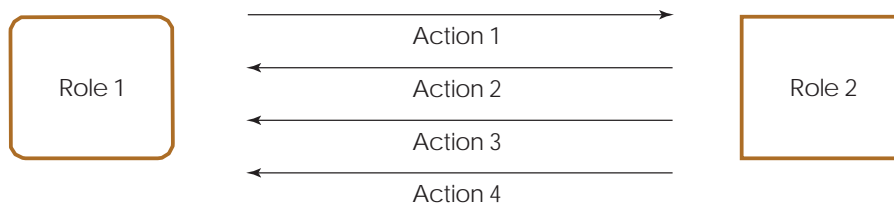
Figure 2. Connection Model Example



6.3. ISO 20022 NPS standards conceptual level

At the conceptual level, detailing of connection model in the NPS is carried out by disclosing the content of the actions in the process that arises between the two roles. Arrangement of different pairs of roles allows to make possible scenarios for implementing of connection models, regardless of the complexity of the scenario.

Figure 3. Example of detailing connection model for a pair of roles in process 2



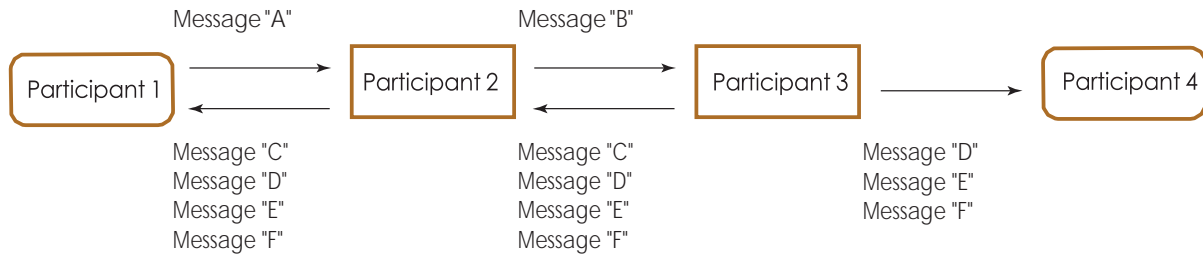
Analysis of the parameters of financial (payment) messages, developed on the basis of ISO 20022 Standard, is carried out in order to determine whether they can be used to perform actions between two roles. Selected messages are recognized as accepted for NPS use and are included in ISO 20022 NPS standards.

Table 4. Form of publication of messages list included in ISO 20022 NPS standards

Message name	Action carried out by using the message

At the conceptual level, basic scenarios are presented for connection models in which roles are delegated to specific participants, and actions between them are described using messages from the list.

Figure 4. Link Model scenario Example



Functional correspondence is established between funds transfer instruction defined by NPS legal framework (hereinafter - Instruction) and messages from the list.

Table 5. Functional correspondence form between instructions and messages from the list

Funds transfer instruction title	List of regulatory documents establishing these instructions		Messages included in ISO 20022 NPS standards		
	general requirements	format definition	in the process of instruction initiation	in the process of instruction settlement	in the process of confirming the execution of instruction

6.4. ISO 20022 NPS standards logical level

At the logical level, for messages included in ISO 20022 NPS standards, their structural and elements structures are given that are fully in line with the structural and elements structures of international financial (payment) messages.

Each element in the message receives a unique code (element number) to be used as a reference to this element when documents navigating.

Table 6. Structure and elements presentation form of messages included in ISO 20022 NPS standards

Elements No.	Elements name		Mult.
	Russian	English	

For instructions and messages between which correspondence is established at the conceptual level, rules for elements placement of these instructions in the structure of related messages are indicated.

Table 7. Form of presentation of information for instruction elements placement in messages elements included in ISO 20022 NPS standards

Instruction element		Message element	
No.	Name	Name	No.

If there are instruction attributes elements used at national level for which correspondence with international financial (payment) messages elements has not been established, the element block "Supplementary Data"¹ ("Additional data") is used.

To perform structural control of messages included in ISO 20022 NPS standards, are indicated:

- international requirements for message schemes;
- national requirements for message schemes.

To perform logical control of messages included in ISO 20022 NPS standards, are indicated:

- international requirements for elements filling rules;
- national requirements for elements filling rules.

Within the framework of the considered connection models, data transfer is provided from the elements of one ISO 20022 message to the elements of the next message within scenario. This correspondence between attributes of different messages is determined by ISO 20022 NPS standards, except for cases when the correspondence cannot be unambiguous for all users of these standards.

Table 8. Presentation form of correspondence table between the message elements included in ISO 20022 NPS standards

Element number of message "A"	Element number of message "B"

6.5. ISO 20022 NPS standards physical level

ISO 20022 NPS standards users apply benchmark XML-schemas (XSD-files), as well as rules in OCL-format (XSLT-files) to implement the conditions for structural and logical control of messages according to international and national rules.

The international requirements for complete structure of messages are established both in ISO 20022 Standard documents and in ISO 20022 NPS standards. For automated systems, these requirements are presented in the form of identical XSD-files in the electronic repository of ISO 20022 Standard and the Database of ISO 20022 NPS standards.

Requirements are presented in ISO 20022 NPS standards in OCL-language and for automated systems in the form of XSLT-files as part of ISO 20022 NPS standards Database.

¹ Creation of attributes block "Supplementary Data" is agreed with the ISO 20022 Registration Authority (RA).

Table 9. Sources of information for design and implementation of structural and logical messages controls

Types of control	Level of control	Source of information when control designing	Source of information for control implementation
Structure control	ISO	In text form, XML-schemes on the ISO 20022 website	Identical XSD files on www.iso20022.org website and the Bank of Russia portal
Structural restrictions	ISO	In text form on the ISO 20022 website; in OCL form on the Bank of Russia portal	XSLT-files on the Bank of Russia portal
	EAEU	In form of text and OCL-language on the Bank of Russia portal	
	NPS		
	Organization	In form of text and OCL-language on organization's website	XSLT-files on organization's website
Logical control Restrictions	ISO	In text form on the ISO 20022 website; in OCL form on the Bank of Russia portal	XSLT-files on the Bank of Russia portal
	EAEU	In form of text and OCL-language on the Bank of Russia portal	
	NPS		
	Organization	In form of text and OCL-language on organization's website	XSLT-files on organization's website

There are:

- International requirements for messages structural restrictions, stated in documents of the ISO 20022 Standard and ISO 20022 NPS standards;
- Requirements at EAEU level to messages structural restrictions, stated in ISO 20022 NPS standards;
- National requirements for messages structural restrictions, stated in ISO 20022 NPS standards;
- International requirements for messages logical control, stated in documents of the ISO 20022 Standard and ISO 20022 NPS standards;
- Requirements of EAEU level to messages logical control, stated in ISO 20022 NPS standards;
- National requirements for messages logical control, stated in ISO 20022 NPS standards.

If the organization establishes additional requirements for structural and logical messages control included in ISO 20022 NPS standards, these requirements should not contradict the high-level control requirements listed above.

At the physical level of ISO 20022 NPS standards the principles for separating the layers of electronic data interchange (applied, technological, transport), data exchange rules, and rules for creating and processing of electronic messages at each layer are established.

7. ISO 20022 NPS standards publication

Publication of ISO 20022 NPS standards means their placing with open access on the Bank of Russia portal in the Internet both in Russian and English, including:

- ISO 20022 NPS standards²;
- messages included in ISO 20022 NPS standards³;
- mapping tables between messages elements included in ISO 20022 NPS³;
- reference XML-schemas (XSD-files), OCL-format rules (XSLT-files)³;
- catalog of financial (payment) messages examples⁴;
- English-language documentation on international financial (payment) messages placed of the ISO 20022 standard official website⁴;
- translated into Russian documentation on international financial (payment) messages⁴.

² approved in hard copy, published electronically.

³ approved and published electronically.

⁴ published electronically.

8. ISO 20022 NPS standards management

Management of ISO 20022 NPS standards is carried out by the Bank of Russia Competence Center focused on the development, implementation and maintenance of financial messages standards based on ISO 20022 (hereinafter - Competence Center).

Competence Center interacts with the Bank of Russia departments, Federal Executive authorities of the Russian Federation, professional associations of market participants, national and international standardization committees, the ISO 20022 Registration Authority (RA), central (national) banks - participants of integration associations with Russian Federation, Eurasian Economic Commission, as well as other organizations involved in usage of financial messages developed on the basis of the ISO 20022 Standard.

Competence Center has a specialized automated system with necessary set of functions for the development, maintenance and publication of ISO 20022 NPS standards, a test platform for introduced changes approbation, and also provides support for the Bank of Russia Internet portal where ISO 20022 NPS standards are published.

9. ISO 20022 NPS standards changes

International financial messages developed on the basis of the ISO 20022 Standard are updated annually, while previous versions continues to be relevant, the requirement for portability of new version in relation to the previous one ("downwards") is not established.

ISO 20022 NPS standards are based on the latest version of standards of international financial (payment) messages, which corresponds to the needs of participants in funds transfer in the NPS in long term.

In the ISO 20022 Standard, there is a mechanism for including changes in financial messages without changing the version using the "Supplementary Data" elements block. National practice can be reflected in messages included in ISO 20022 NPS standards by means of this mechanism.

Changes in ISO 20022 NPS standards are also made on an annual basis in case of legislative requirements, which affect on changes timing, absence.

In case of a justified necessity, a migration to a new version of international financial (payment) messages is possible, participants should be notified of a new version introduction not less than six months before the date of its introduction.

10. ISO 20022 NPS standards training

In order to prepare for the migration to ISO 20022 NPS Standard, the Bank of Russia has developed a specialized training program.

The program is designed for operating services managers and specialists, treasuries and IT-structures of banks, commercial organizations, and authorities.

The program includes an introduction course, specialized courses on ISO 20022 NPS standards, as well as practical training.

Complete program information is published on the Bank of Russia website in subsection "ISO 20022 Standard Implementation Project" of the "National Payment System" section.