
**Financial services — UNiversal Financial
Industry message scheme —**

**Part 6:
Message Transport Characteristics**

*Services financiers — Schéma universel de messages pour l'industrie
financière —*

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Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	1
4 Exchange of messages in ISO 20022.....	3
4.1 Layered protocol.....	3
4.2 Layering principles	4
4.3 Receiving Messaging Endpoint Idempotent Behaviour	5
4.4 Bandwidth Assumption.....	5
4.5 Security Assumption	5
5 Message Transport Characteristics.....	5
5.1 General.....	5
5.2 Delivery Assurance.....	6
5.3 Sender Asynchronicity.....	6
5.4 Receiver Asynchronicity.....	6
5.5 Bounded Communication Delay.....	7
5.6 Message Delivery Order.....	7
5.7 Message Delivery Window.....	8
5.8 Message Sending Window.....	8
5.9 Message Casting.....	8
5.10 Message Validation On/Off.....	9
5.11 Message Validation Results.....	9
5.12 Message Validation Level.....	9
5.13 Durability	10
5.14 Maximum Message Size	10
6 Times and clocks	11
6.1 Clocks	11
6.2 Time representation.....	11
7 Registering Message Transport Modes.....	11
7.1 General.....	11
7.2 Example 1: Reliable Mode.....	11
7.3 Example 2: Quick Mode	12
Bibliography	13

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 20022-6 was prepared by Technical Committee ISO/TC 68, *Financial services*.

ISO 20022 consists of the following parts, under the general title *Financial services — UNiversal Financial Industry message scheme*:

- *Part 1: Overall methodology and format specifications for inputs to and outputs from the ISO 20022 Repository*
- *Part 2: Roles and responsibilities of the registration bodies*
- *Part 3: ISO 20022 modelling guidelines* [Technical Specification]
- *Part 4: ISO 20022 XML design rules* [Technical Specification]
- *Part 5: ISO 20022 reverse engineering* [Technical Specification]
- *Part 6: Message Transport Characteristics*

Financial services — UNiversal Financial Industry message scheme —

Part 6: Message Transport Characteristics

1 Scope

This part of ISO 20022 specifies the characteristics of the Message Transport System required for an ISO 20022 Business Transaction and Message Definition. Changes to the value of the Message Transport Characteristics can affect the Business Transaction and Message Definition.

Each Business Transaction in the ISO 20022 Repository is associated with a Message Transport Mode. The Message Transport Mode specifies the values for the Message Transport Characteristics.

This part of ISO 20022 specifically does not define the wire-level interoperability of message transports. The overall structure is of a layered specification, in order that ISO 20022 can be implemented over many message transports. This part of ISO 20022 defines only those characteristics required for interoperability at the business process and message level.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 20022-1, *Financial services — UNiversal Financial Industry message scheme — Part 1: Overall methodology and format specifications for inputs to and outputs from the ISO 20022 Repository*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20022-1 and the following apply.

3.1

Address

element that identifies and efficiently resolves the location of a **Messaging Endpoint** (3.11)

NOTE The purpose of an Address is to efficiently resolve a location. This is what distinguishes an Address from any other identifier, which merely identifies.

3.2

Broadcast List

set of references to **Messaging Endpoints** (3.11), identified by their **Address** (3.1), which is used for Message Broadcasting

NOTE 1 The Broadcast List is managed by the **Message Transport System** (3.10), which provides a mechanism to maintain the Broadcast List.

NOTE 2 “Set” means the list of Addresses is unordered and each Address is only present once.

3.3

Business Layer

higher or upper layer of the protocol hierarchy that is used to exchange ISO 20022 messages

NOTE Two layers are defined:

- a **Message Transport Layer** (3.13), and
- a Business Layer.

The Business Layer is concerned with the business process, independent of the mechanics of messaging (i.e. independent of technology). The Message Transport Layer is concerned with the mechanics of messaging (i.e. independent of the Business Process).

3.4

Business Message

document appearing in the **Business Layer** (3.3) that is an instance of an ISO 20022 Syntax Message Scheme

NOTE A Business Message is valid against the related Message Definition in the ISO 20022 Repository. Validity includes Syntax Message Scheme validity, as well as validity against the Message Rules, Rules and Market Practices that are registered for this Message Definition.

3.5

Conversation

context, defined in the **Message Choreography** (3.7), in which messages are correlated

NOTE The concept is analogous to the concept of a Session in pi-calculus and similar process models.

3.6

Messaging Application Layer

layer immediately beneath the bottom layer of ISO 20022

NOTE This is the Open System Interconnection (OSI) Layer 7 application that delivers messages (see also 4.1).

EXAMPLE Examples of applications at the Messaging Application Layer: AMQP, ftp, http and SOAP, WebsphereMQ, or SonicMQ.

3.7

Message Choreography

precise and complete description of a **Business Message** (3.4) exchange, describing the sequence and correlation of messages within a **Conversation** (3.5), including the constraints on interaction

NOTE 1 Every Business Transaction contains its own Message Choreography.

NOTE 2 A Business Transaction describes all aspects of a particular solution that meets the requirements of a Business Process. This includes, amongst other things, the Message Choreography, describing the structure of Business Message exchange.

3.8

Message Transport Characteristics

properties of the **Message Transport Layer** (3.13) that are defined in this part of ISO 20022

3.9

Message Transport Mode

group of settings for the values for the **Message Transport Characteristics** (3.8) properties

NOTE 1 A Message Transport Mode is named and is registered in the ISO 20022 Repository. Each Message Transport Characteristic is given a value.

NOTE 2 A Message Transport Mode can be associated with many Business Transactions. The Message Transport Mode is used to organize commonly used combinations of Message Transport Characteristic settings.

3.10**Message Transport System**

mechanism that receives **Transport Messages** (3.14) from the sending **Messaging Endpoint** (3.11), transports them, and delivers them to the receiving Messaging Endpoint

NOTE 1 The Message Transport System is responsible for delivering Transport Messages to each Addressee.

NOTE 2 The purpose of the Message Transport System is to provide a clear delineation of the responsibility of the Messaging Endpoints and any Message Transport System service providers. The role can be fulfilled by the sending Messaging Endpoint or by a separate service provider who provides a Message Transport System. Message Transport Systems can be chained together into a single Message Transport System.

3.11**Messaging Endpoint**

addressable node on the **Message Transport System** (3.10) which is capable of sending and receiving **Transport Messages** (3.14)

NOTE A Messaging Endpoint has an **Address** (3.1).

3.12**Name**

identifier of something

NOTE 1 A Name is “pure”, i.e. it is used for no purpose other than to identify something.

NOTE 2 Business logic is not based on anything about a Name other than its identity.

3.13**Message Transport Layer**

lower or bottom layer of the protocol that is used to exchange ISO 20022 messages

NOTE Two layers are defined:
— a Message Transport Layer, and

— a **Business Layer** (3.3).

The Business Layer is concerned with the business process, independent of the mechanics of messaging (i.e. independent of technology). The Message Transport Layer is concerned with the mechanics of messaging (i.e. independent of the Business Process).

3.14**Transport Message**

document that is an instance of the **Message Transport System** (3.10) message schema

NOTE 1 The Transport Message appears in the **Message Transport Layer** (3.13). The **Business Message** (3.4) is contained within the body of a Transport Message.

NOTE 2 ISO 20022 does not define the Message Transport System message schema because it is a layered specification that supports multiple Message Transport Systems.

4 Exchange of messages in ISO 20022**4.1 Layered protocol**

The protocol that is used for exchanging ISO 20022 messages is defined as being in two layers sitting directly above the seven layers of the Open System Interconnection (OSI) model.

NOTE ISO/IEC 7498-1 is referred to as “OSI” throughout this part of ISO 20022.

- The higher or upper layer is named the Business Layer and deals with Business Messages. The exchange of Business Messages is fully described in the Message Choreography and the structure of the Business Messages is fully described by the Message Definitions and related Message Rules, Rules and Market Practices. All of these shall be registered in the ISO 20022 Repository. The Business Layer is equivalent to adding a Layer 9 to the OSI model.
- The lower or bottom layer is named the Message Transport Layer and deals with Transport Messages. The implementation of the Message Transport Layer may vary and is therefore outside the scope of ISO 20022. The behaviour and structure of the Transport Messages shall therefore not be registered in the ISO 20022 Repository. The Transport Characteristics apply to the Message Transport Layer. The Message Transport Layer is equivalent to adding a Layer 8 to the OSI model.
- The layer immediately beneath and therefore outside the ISO 20022 Protocol is the Application Layer. This is the Messaging Application layer. ISO 20022 allows any Messaging Application that will support the requirements of the Message Transport Layer. The Messaging Application Layer is Layer 7 of the OSI model.

4.2 Layering principles

A single new Business Message is created – by the sending business application – for each business event; that is each interaction in a Business Transaction. A Business Message adheres to the following principles:

- A Business Message shall not contain information about the Message Transport System or the mechanics or mechanism of message sending, transportation, Address, or receipt.
- A Business Message shall be comprehensible outside of the context of the Transport Message. That is the Business Message shall not require knowledge of the Transport Message to be understood.
- A Business Message may contain headers, footers and envelopes that are meaningful for the business. When present, they are treated as any other message content, which means that they are considered part of the Message Definition of the Business Message and as such will be part of the ISO 20022 Repository.
- A Business Message refers to Business Actors by their Name. Each instance of a Business Actor has one Name. The instance of the Business Actor shall not be referred to in the Message Transport Layer.

A new Transport Message is created for each time a Business Message is published by a sending Messaging Endpoint. A Transport Message adheres to the following principles:

- a) A Transport Message will have a body which only contains the Business Message.
- b) A Transport Message may contain headers, footers and envelopes that are meaningful for the transport and shall not contain information about the business process. As these headers, footers and envelopes are implementation specific, they shall not be registered in the ISO 20022 Repository.
- c) A Transport Message is published by one Messaging Endpoint and received at nought to many Messaging Endpoints. Each Messaging Endpoint is identified by one Address. The Messaging Endpoint is referred to in the Message Transport Layer by its Address. The Messaging Endpoint shall not be referred to in the Business Layer.

A Business Actor shall be able to change its association with Messaging Endpoints during a Business Transaction.

4.3 Receiving Messaging Endpoint Idempotent Behaviour

A Messaging Endpoint may republish a Business Message. This will create a new Transport Message containing the same Business Message. The receiving Messaging Endpoint shall behave as if it had only received the Business Message once. This property is named “Business Message Republication Idempotency”.

The Message Transport System may republish a Transport Message. This creates a new copy of the original Transport Message (containing a copy of the original Business Message). The receiving Messaging Endpoint shall behave as if it had only received the Transport Message once. This property is named “Transport Message Republication Idempotency”.

4.4 Bandwidth Assumption

The bandwidth provided for Transport Messages at a Messaging Endpoint and for the Message Transport System is assumed to be unconstrained. There is no limit defined for messaging bandwidth.

Unconstrained bandwidth for Layer 8 Transport Messages will hold for all higher layers, such as Layer 9 Business Messages, because they are transported within Layer 8.

Unconstrained bandwidth for Layer 8 Transport Messages makes no requirement for lower layers, such as Layers 1 to 7.

NOTE It is acknowledged that in practice bandwidth both of the Message Transport System and at a Messaging Endpoint is finite. The purpose of the Bandwidth Assumption is to be clear that it is the obligation of the Message Transport System and Messaging Endpoint to meet the bandwidth requirements, and not the obligation of the Message Choreography, Message Definition or any other part of the Standard to constrain those requirements.

4.5 Security Assumption

It is assumed the Transport Messages are delivered securely by all the Message Transport Systems involved in delivery. This is defined as:

- The Transport Message is sent from the Messaging Endpoint named as the sender in the Transport Message.
- The Transport Message has not been modified since sending, except by Message Transport Systems.
- The Transport Message is private to the Sender, the Message Transport Systems it flows through, and the Destinations.
- The Message Transport System is not required to be capable of verifying to a third party that a sender sent a message or a destination received a message.

NOTE The purpose of the Security Assumption is to be clear; basic security does not need to be recreated inside the Message Transport Layer or Business Layer.

5 Message Transport Characteristics

5.1 General

This section defines the Message Transport Characteristics. These are important because their values may have an impact on Message Choreography and Message Definition.

Each characteristic is defined, and then the set of possible values is defined. The list of values is complete. The values are exclusive choices unless defined otherwise.