INTERNATIONAL STANDARD

ISO
20022-1

Second edition
2013-05-01

Financial services — Universal financial industry message scheme —

Part 1:
Metamodel

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

Partie 1: Métamodèle

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 20022-1:2013
https://standards.iteh.ai/catalog/standards/sist/ab147f62-c866-4421-8432-
c65b172a7338/iso-20022-1-2013

COPYRIGHT PROTECTED DOCUMENT

Contents

Page

ISO 20022-1:2013
https://standards.iteh.ai/catalog/standards/sist/ab147f62-c866-4421-8432-
c65b172a7338/iso-20022-1-2013

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 20022-1 was prepared by Technical Committee ISO/TC 68, *Financial services*.

This second edition cancels and replaces the first edition (ISO 20022-1:2004), which has been technically revised.

ISO 20022 consists of the following parts, under the general title *Financial services — Universal financial industry message scheme*:

⎯ *Part 1: Metamodel*

⎯ *Part 2: UML profile*

⎯ *Part 3: Modelling*

⎯ *Part 4: XML Schema generation*

⎯ *Part 5: Reverse engineering*

⎯ *Part 6: Message transport characteristics*

⎯ *Part 7: Registration*

⎯ *Part 8: ASN.1 generation*

ISO 20022-1:2013, ISO 20022-2:2013, ISO 20022-3:2013, ISO 20022-4:2013, ISO 20022-5:2013, ISO 20022-6:2013, ISO 20022-7:2013 and ISO 20022-8:2013 will be implemented by the Registration Authority by no later than the end of May 2013, at which time support for the concepts set out within them will be effective. Users and potential users of the ISO 20022 series are encouraged to familiarize themselves with the 2013 editions as soon as possible, in order to understand their impact and take advantage of their content as soon as they are implemented by the Registration Authority. For further guidance, please contact the Registration Authority.

For the purposes of research on financial industry message standards, users are encouraged to share their views on ISO 20022:2013 and their priorities for changes to future editions of the document. Click on the link below to take part in the online survey:

http://www.surveymonkey.com/s/20022_2013

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 20022-1:2013
https://standards.iteh.ai/catalog/standards/sist/ab147f62-c866-4421-8432-
c65b172a7338/iso-20022-1-2013

Introduction

This International Standard defines a scalable, methodical process to ensure consistent descriptions of messages throughout the financial services industry.

The purpose of this International Standard is to describe precisely and completely the externally observable aspects of financial services messaging in a way that can be verified independently against operational messaging.

The trigger for the creation of this International Standard was the rapid growth in the scale and sophistication of messaging within financial services during the 1990s using ISO 15022. The financial services industry (from hereon referred to as "the industry") created the first version of this International Standard as the successor to ISO 15022 in response to that trigger. Since ISO 15022, the industry has broadened the scope from securities to the entire industry for this International Standard.

This International Standard is based on open technology standards, which historically have evolved more rapidly than the industry itself. Consequently, this International Standard adopted a model-driven approach where the model of the industry's messaging can evolve separately from the evolution of the messaging technology standards. The period during which this International Standard has emerged followed the widespread adoption of the World Wide Web (the Web) for business. XML (eXtensible Mark-up Language) emerged as the *de facto* standard for document representation on the Web and it became the first syntax for ISO 20022.

The modelling process is further refined into three levels which, in addition to the messaging technology standard, is why this International Standard is based on four levels: the Scope level, the Conceptual level, the Logical level and the Physical level.

This four-level approach is based on the first four levels of the Zachman Framework. The remaining two levels of the Zachman Framework are equivalent to the implementations and the operational levels, respectively.

In this part of ISO 20022, the first, second and third levels are described in UML (Unified Modelling Language) because it is widely supported and supports multiple levels of abstraction. The models created in accordance with this International Standard are technology independent in that they do not require any particular physical expression or implementation. Such models aim to describe all parts of the message exchange. The models form the definition of the protocol between participants exchanging messages. This International Standard defines a method that describes a process by which these models can be created and maintained by the modellers.

The models and the Physical level artefacts are stored in a central repository, serviced by a Registration Authority. This International Standard's repository is available on the World Wide Web and offers public access for browsing.

The Repository is organized into two areas:

— A DataDictionary containing the industry model elements likely to have further or repeated use.

— A BusinessProcessCatalogue that contains models describing specific message definitions and business processes, and physical syntax implementations.

This International Standard is organized into the following parts.

— This part of ISO 20022 describes in MOF (Meta-Object Facility) the metamodel of all the models and the Repository.

— ISO 20022-2 covers the UML profile, a grounding of general UML into a specific subset defined for this International Standard (to be used when UML is selected to define the models).

— ISO 20022-3 describes a modelling method to produce models for this International Standard.

— ISO 20022-4 covers XML schema generation rules to transform a Logical level model into a Physical level description in the syntaxes.

— ISO 20022-5 covers logical model alignment and reverse engineering of existing message syntaxes.

— ISO 20022-6 covers message transport characteristics that define the quality of service required by the business process definitions so that they can operate successfully.

— ISO 20022-7 describes the process of managing the registration of models and physical syntax implementations.

— ISO 20022-8 gives ASN.1 syntax generation rules to transform a Logical level model into a Physical level description in ASN.1.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 20022-1:2013
https://standards.iteh.ai/catalog/standards/sist/ab147f62-c866-4421-8432-
c65b172a7338/iso-20022-1-2013

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Financial services — Universal financial industry message scheme —

Part 1:
Metamodel

1 Scope

This part of ISO 20022 consists of:

— the overall description of the modelling approach;

— the overall description of the ISO 20022 Repository contents;

— a high-level description of the input to be accepted by the Registration Authority to feed/modify the Repository's DataDictionary and BusinessProcessCatalogue;

— a high-level description of the Repository output to be made publicly available by the Registration Authority.

BusinessTransactions and Message Sets complying with ISO 20022 can be used for electronic data interchange amongst any industry participants (financial and others), independently of any specific communication network. Network-dependent rules, such as message acknowledgement and message protection, are outside the scope of ISO 20022.

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 20022-2, *Financial services — Universal financial industry message scheme — UML profile*

The Zachman Framework for Enterprise Architecture — Zachman Institute for Framework Advancement

W3C Recommendation: XML Schema Part 2: Datatypes Second Edition, 28 October 2004

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
Address
identification and efficient resolution to the location of a MessagingEndpoint

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 something.

3.2
amount
number of monetary units specified in a currency where the unit of currency is explicit or implied

3.3
binary
any set of values drawn from the value space of 'base64Binary', as specified by W3C Recommendation XML Schema Part 2: Datatypes

3.4
boolean
any set of values drawn from the value space of 'boolean', as specified by W3C Recommendation XML Schema Part 2: Datatypes

3.5
BroadcastList
set of references to MessagingEndpoints (identified by their Address), that is used for message broadcasting.

NOTE 1   The BroadcastList is managed by the MessageTransportSystem, which provides a mechanism to maintain the BroadcastList.

NOTE 2   "Set" means the list of Addresses is unordered and each Address may only be present once.

3.6
BusinessArea
set of strongly related business activities that provide a self-standing business value to a set of BusinessRoles

EXAMPLE   Securities pre-trade, payment initiation.

NOTE   BusinessAreas are stored in the BusinessProcessCatalogue.

3.7
BusinessAssociation
relation between two BusinessComponents

EXAMPLE   The servicing of an account by a party.

NOTE 1   BusinessAssociations are a category of BusinessConcepts. Their meaning can only be described unambiguously in combination with these two BusinessComponents.

NOTE 2   There can be several BusinessAssociations between two particular BusinessComponents.

3.8
BusinessAssociationEnd
the endpoint of a BusinessAssociation, which connects the BusinessAssociation to the BusinessComponent

3.9
BusinessAttribute
a BusinessElement, typed by a BusinessComponent or a DataType (contrary to a BusinessAssociationEnd, which is always typed by another BusinessComponent)

EXAMPLE   AccountIdentification, PhoneNumber.

3.10
BusinessComponent
representation of a (part of a) key business notion, characterized by specific BusinessElements

EXAMPLE   Account, trade, party.

NOTE 1   BusinessComponents are a category of BusinessConcepts. They are stored in the DataDictionary.

NOTE 2   A BusinessComponent can have one or more semantic relations with other BusinessComponents.

3.11
BusinessComponentTrace
semantic relationship between a MessageComponentType/MessageElement and the BusinessComponent from which it is derived

3.12
BusinessConcept
a DataDictionary item defined at the Conceptual level with a business meaning

3.13
BusinessElement
property of a BusinessComponent that has a distinctive meaning within the scope of that BusinessComponent

EXAMPLE   Account status, deal price, trade date and deal time.

3.14
BusinessElementTrace
semantic relationship between a MessageElement and the BusinessElement from which it is derived

3.15
BusinessProcess
unrealized definition of the business activities undertaken by BusinessRoles within a BusinessArea whereby each BusinessProcess fulfils one type of business activity and whereby a BusinessProcess might include and extend other BusinessProcesses

iTeh STANDARD PREVIEW
(standards.iteh.ai)

EXAMPLE   Securities ordering, trade matching.

NOTE 1   A BusinessProcess can contain other BusinessProcesses such as in a hierarchical structure.

NOTE 2   BusinessProcesses are stored in the BusinessProcessCatalogue.

3.16
BusinessProcessCatalogue
that part of the ISO 20022 Repository which contains all items related to Business Process and BusinessTransaction

NOTE   It contains related items from the BusinessArea down to the MessageDefinitions and their physical implementation.

3.17
BusinessProcessTrace
relationship between a BusinessTransaction and the BusinessProcess on which the BusinessTransaction is based

3.18
BusinessRole
functional role played by a business actor in a particular BusinessProcess or BusinessTransaction

EXAMPLE   Account owner, buyer.

NOTE 1   BusinessRoles are a category of BusinessConcepts and are stored in the DataDictionary.

NOTE 2   A business actor can play different BusinessRoles in different BusinessProcesses.

3.19
BusinessRoleTrace
relationship between a Participant in a BusinessTransaction and a BusinessRole identified in the BusinessProcess from which the BusinessTransaction is derived

3.20
BusinessTransaction
particular solution that meets the communication requirements and the interaction requirements of a particular BusinessProcess and BusinessArea

NOTE   It is typically based on the use of MessageInstances.

3.21
BusinessTransactionTrace
relationship between a BusinessTransaction and its physical implementation

3.22
ChoiceComponent
re-usable Dictionary Item that is a building block for assembling MessageDefinitions, composed of a choice of MessageElements

NOTE 1   It is usually linked to a BusinessComponent.

NOTE 2   ChoiceComponents are stored in the DataDictionary.

3.23
Code
character string (letters, figures or symbols) that for brevity and/or language independence can be used to represent or replace a definitive value or text of an attribute

3.24
CodeSet
complete and enumerated set of Codes grouped together to characterize all the values of an attribute

3.25
CodeSetTrace
semantic relationship between two CodeSets whereby the derived Codeset is used as the type of a BusinessElement and the deriving Codeset is used as the type of a MessageElement

3.26
Constraint
rule that shall be universally satisfied, i.e. all conditions required for the Constraint to be applicable are known

EXAMPLE   An Account has an AccountOwner.

3.27
ConvergenceDocumentation
documentation set showing relations between ISO 20022 MessageDefinitions, MessageComponentTypes, MessageElements, BusinessComponents and/or BusinessElements and items defined in other industry MessageSets

3.28
Conversation
exchange of one or more MessageInstances amongst MessagingEndpoints

NOTE   In a synchronous Conversation, the sending MessagingEndpoint blocks the sending and receipt of other TransportMessages within the conversation, in which the TransportMessage was sent, while waiting for a response to this sent TransportMessage. This is not the case in an asynchronous conversation.

3.29
DataDictionary
part of the ISO 20022 Repository that contains all items that can be re-used during business process modelling and message definition activities

NOTE   The DataDictionary therefore contains BusinessConcepts, MessageConcepts and DataTypes.

3.30
DataType
representation of a set of values without identity

3.31
date
any set of values drawn from the value space of 'date', as specified by W3C Recommendation XML Schema Part 2: Datatypes

3.32
dateTime
any set of values drawn from the value space of 'dateTime', as specified by W3C Recommendation XML Schema Part 2: Datatypes

3.33
day
any set of values drawn from the value space of 'gDay', as specified by W3C Recommendation XML Schema Part 2: Datatypes

3.34
decimal
any set of values drawn from the value space of 'decimal', as specified by W3C Recommendation XML Schema Part 2: Datatypes

3.35
duration
any set of values drawn from the value space of 'duration', as specified by W3C Recommendation XML Schema Part 2: Datatypes

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 20022-1:2013
https://standards.iteh.ai/catalog/standards/sist/ab147f62-c866-4421-8432-
c65b172a7338/iso-20022-1-2013

3.36
ExternalSchema
reusable Dictionary Item that allows referral to a structure defined outside the ISO 20022 MessageDefinition

EXAMPLE   In case of XML (eXtensible Markup Language), this artefact is transformed into an XML Schema "any" element and the external structure is defined through another XML Schema.

3.37
IdentifierSet
unenumerated set of values outside the Repository whereby each value distinguishes uniquely one instance of an object within an identification scheme from all other instances of the objects within the same scheme

3.38
indicator
a list of exactly two mutually exclusive values that express the only two possible states of an instance of an object

3.39
industryMessageSet
set of non-ISO 20022 compliant messages, which is defined and used by part of the financial industry

EXAMPLE   The set of FIX v5 messages.

3.40
ISO15022MessageSet
industryMessageSet constructed according to the rules defined in ISO 15022-1 and ISO 15022-2, which is stored in the ISO 15022 Catalogue of Messages

3.41
MessageAssociationEnd
type of MessageElement that specifies the role of a MessageAssociation

3.42
MessageAttribute
type of MessageElement which is either a DataType or a MessageComponentType

3.43
MessageBuildingBlock
characteristic of a MessageDefinition that has a unique meaning within the scope of that MessageDefinition

NOTE   MessageBuildingBlocks are not reused, since they only have meaning within a specific MessageDefinition.

3.44
MessageChoreography
precise and complete description of a MessageInstance exchange within a BusinessTransaction, describing the sequence and correlation of MessageInstances within a conversation, including the constraints on the interaction between Participants

NOTE   Every BusinessTransaction contains its own MessageChoreography.

3.45
MessageComponent
re-usable Dictionary Item that is a building block for assembling MessageDefinitions, composed of a sequence of MessageElements

EXAMPLE   Trade Details, which contains a number of the properties of the related BusinessComponent "Trade".

3.46
MessageComponentType
MessageComponent, ExternalSchema or ChoiceComponent

NOTE 1   When a MessageComponentType has a business meaning it is linked to a BusinessComponent.

NOTE 2   MessageComponentTypes are a category of MessageConcepts and are stored in the DataDictionary.

3.47
MessageConcept
DataDictionary artefact, which is not a DataType, that is used in a MessageDefinition

3.48
MessageDefinition
formal description of the structure of a MessageInstance

NOTE 1   The MessageDefinition is built as a tree structure of MessageComponentTypes and DataTypes. A MessageDefinition is uniquely identified in the BusinessProcessCatalogue.

NOTE 2   A MessageDefinition can have several market practices.

3.49
MessageDefinitionIdentifier
unique identification of a MessageDefinition within the ISO 20022 namespace, identifying the BusinessArea to which the MessageDefinition belongs, the Message Functionality it covers, its flavour and its version

3.50
MessageDefinitionTrace
relationship between a MessageDefinition and its physical implementation as a SyntaxMessageScheme

NOTE   This relationship is explained in ISO 20022-4.

3.51
MessageElement
characteristic of a MessageComponent/ChoiceComponent, which has a unique meaning within the scope of that MessageComponent/ChoiceComponent

EXAMPLE   Trade Date and Time, as part of the MessageComponent "Trade Details".

NOTE   MessageElements are a category of MessageConcepts. They are stored in the DataDictionary where they are owned by a particular MessageComponent/ChoiceComponent. Their meaning can only be described unambiguously in combination with that MessageComponent/ChoiceComponent.

3.52
MessageInstance
instance of MessageDefinition, containing a set of structured information exchanged between BusinessRoles, in the scope of a BusinessTransaction

EXAMPLE   Notice Of Execution, Order To Buy, Credit Transfer.

NOTE   A MessageInstance is expected to be valid against the related MessageDefinition in the ISO 20022 Repository. This implies validity against the SyntaxMessageScheme as well as validity against the Constraints and market practices that are registered for this MessageDefinition.

3.53
MessageSet
set of MessageDefinitions

NOTE   MessageDefinitions within a MessageSet do not have to belong to the same BusinessArea.

3.54
MessageTransmission
passing of information from one Participant to another in the context of a BusinessTransaction

3.55
MessageTransportMode
group of settings for the values for the MessageTransportCharacteristics properties

NOTE 1   A MessageTransportMode is named and registered in the ISO 20022 Repository. Each MessageTransportCharacteristic is given a value.

NOTE 2   A MessageTransportMode can be associated with many BusinessTransactions. The MessageTransportMode is used to organize commonly used combinations of MessageTransportCharacteristic settings.

3.56
MessageTransportSystem
mechanism that receives Transport Messages from the sending MessagingEndpoint, transports them, and delivers them to the receiving MessagingEndpoint

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

NOTE 2   The purpose of the MessageTransportSystem is to provide a clear delineation of the responsibility of the MessagingEndpoints and any MessageTransportSystem service providers. The role can be fulfilled by the sending MessagingEndpoint or by a separate service provider who provides a MessageTransportSystem. MessagingTransportSystems can be chained together into a single MessageTransportSystem

3.57
MessageTypeTrace
relationship between a MessageTransmission in a BusinessTransaction and its corresponding MessageDefinition