International Standard

ISO 20022-1

Financial services — Universal financial industry message scheme —

Part 1: Metamodel

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

Partie 1: Métamodèle

Third edition
2026-04

Reference number
ISO 20022-1:2026(en)

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Published in Switzerland

Contents

Page

Foreword ... **iv**
Introduction ... **vi**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Type Library ... **11**
5 Metamodel packages ... **13**
5.1 General ... 13
5.2 The metamodel's use of ISO20022::TypeLibrary ... 13
5.3 Levels ... 14
5.3.1 General ... 14
5.3.2 Scope level ... 15
5.3.3 Conceptual level ... 16
5.3.4 Logical level ... 18
5.3.5 Physical level ... 21
5.4 Models Transformation ... 22
5.4.1 General ... 22
5.4.2 Scope to Conceptual ... 23
5.4.3 Conceptual to Logical ... 23
5.4.4 Logical to Physical ... 25
6 Repository ... **25**
6.1 Repository structure ... 25
6.1.1 Overview ... 25
6.2 DataDictionary ... 27
6.2.1 Overview ... 27
6.2.2 List of Dictionary Items ... 28
6.2.3 DictionaryItem Registration Status ... 31
6.2.4 DictionaryItems description information ... 32
6.2.5 DataDictionary life cycle ... 32
6.3 BusinessProcessCatalogue ... 32
6.3.1 Overview ... 32
6.3.2 List of BusinessProcessCatalogueItems ... 33
6.3.3 CatalogueItem Registration Status ... 33
6.3.4 CatalogueItem description information ... 33
6.3.5 BusinessProcessCatalogue life cycle ... 34
7 Registration ... **34**
8 Repository access ... **34**
8.1 General ... 34
8.2 Repository output types ... 34
8.3 Output format ... 34
Annex A (normative) **Type library** ... **35**
Annex B (normative) **Metamodel** ... **49**
Bibliography ... **154**

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 68, *Financial services*, Subcommittee SC 9, *Information exchange for financial services*.

This third edition cancels and replaces the second edition (ISO 20022-1:2013), which has been technically revised.

The main changes are as follows:

— changes:
  — Use of ISO/IEC 11404 instead of XML schema, except XML Schema temporal types remain.
  — CodeSet trace to BusinessCodeSet, formalising the two-level approach used in practice.
  — Top level entries across the catalogue and dictionary have unique names.
  — BusinessArea moved to scope level to contain BusinessProcesses
— clarifications:
  — Cardinality specified and updated related constraints.
  — Lengths of Binary, String and Text types are positiveIntegers.
  — MessageAssociationEnd aggregation to align with BusinessAssociationEnd.
  — Choreography associated indirectly with MessageDefinitions via MessageSet, instead of directly.
— additions:
  — Defined term "Conformance" to replace use of "compliance"
  — SyntaxMessageScheme linked to Syntax.
  — Import relationship amongst BusinessTransactions.

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- Conversation trace to Choreography, as a conversation is an instance of a choreography.
- Conversation aggregates MessageInstances to MessagingEndpoints, as per its definition.
- Pointer data type to enable direct references within each message instance.
- Binary types specify preferred text representation.
- Minor version properties (revision, variation) and draft were added to MessageDefinition
- Path of traces from BusinessComponent to BusinessElement.
- InterfaceSpecifications traces to logical InterfaceDefinitions comprising of Operations with Parameters.
- Kind and Type of Constraint.
- Version relationships amongst RepositoryConcept.

A list of all parts in the ISO 20022 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The ISO 20022 series defines a scalable, methodical process to ensure consistent descriptions of messages throughout the financial services industry.

The purpose of the ISO 20022 series 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 the ISO 20022 series was the rapid growth in the scale and sophistication of messaging within financial services during the 1990s using the ISO 15022 series. The financial services industry (hereafter referred to as "the industry") created the first version of the ISO 20022 series as the successor to the ISO 15022 series in response to that trigger. Since the ISO 15022 series, the industry has broadened the scope from securities to the entire industry for the ISO 20022 series.

The ISO 20022 series is based on open technology standards, which historically have evolved more rapidly than the industry itself. Consequently, the ISO 20022 series 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 the ISO 20022 series has emerged followed the widespread adoption of the internet for business. The eXtensible Mark-up Language (XML) emerged as the de facto standard for document representation on the internet and it became the first syntax for the ISO 20022 series.

The modelling process is further refined into three levels which, in addition to the messaging technology standard, is why the ISO 20022 series 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[5]. The remaining two levels of the Zachman Framework are equivalent to the implementations and the operational levels, respectively.

In this document, the first, second and third levels are described in Unified Modelling Language (UML) because it is widely supported and supports multiple levels of abstraction. The models created in accordance with this document 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 document defines a process by which these models can be created and maintained by the modellers.

The model and physical level artefacts artefacts are stored in an ISO 20022 Repository (hereafter referred to as "the Repository"). The Repository and physical level artefacts are exposed in a publicly accessible location, such as a website, serviced by a Registration Authority. The name and contact information of the Registration Authority for the ISO 20022 series can be found at www.iso.org/maintenance_agencies.

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 MessageDefinitions, and business processes and physical syntax implementations.

The ISO 20022 series is organized into the following parts:

— This document describes the metamodel of all the models and the Repository according to ISO/IEC 19502:2005 (MOF).

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

— ISO 20022-3 describes a modelling method to produce models for the ISO 20022 series.

— 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 business concept model interoperability, and logical model alignment and reverse engineering.

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— 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.

— ISO 20022-9 describes generic guidelines which are used to define schema generation rules for any specific syntax.

Defined terms of this document are in PascalCase and will use PascalCase throughout the document.

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Financial services — Universal financial industry message scheme —

Part 1: Metamodel

1 Scope

This document specifies:

— the overall description of the modelling approach;

— the overall description of the ISO 20022 Repository (hereby referred to as 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 MessageSets Conforming with ISO 20022 series 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 beyond the scope of the ISO 20022 series.

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 — Part 2: UML profile*

ISO 20022-3, *Financial services — Universal financial industry message scheme— Part 3: Modelling*

ISO/IEC 11404, *Information technology — General-Purpose Datatypes (GPD)*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
Address
identification and efficient resolution to the location of a *MessagingEndpoint* (3.67)

Note 1 to entry: 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.

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