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Financial services — Universal financial industry message scheme —

Part 5: Conceptual interoperability and reverse engineering

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

Partie 5: Interopérabilité conceptuelle et ingénierie inverse

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Contents

Page

Foreword ..... **v**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Background **2**
5 Activities and deliverables **3**
5.1 General 3
5.2 Reverse engineering 4
5.2.1 General 4
5.2.2 Gap analysis 4
5.2.3 Development of ISO 20022 conformant BusinessTransactions and MessageSets 5
5.2.4 ISO 20022 registration related activities 5
5.2.5 Preparation of migration 5
5.3 Enhancing interoperability at the conceptual level 5
5.3.1 General 5
5.3.2 Gap analysis 6
5.3.3 Development of ISO 20022 conformant BusinessComponents 6
5.3.4 ISO 20022 registration related activities 6
6 Workflow for reverse engineering **7**
6.1 General 7
6.2 Gap analysis 7
6.2.1 General 7
6.2.2 IndustryMessageSet documentation 8
6.2.3 BusinessArea gap analysis 9
6.2.4 BusinessProcess gap analysis 11
6.2.5 BusinessTransaction gap analysis 13
6.2.6 MessageDefinition gap analysis 16
6.2.7 BusinessRoles gap analysis 19
6.3 Development of ISO 20022 conformant BusinessTransactions and MessageSets 21
6.3.1 General 21
6.3.2 New BusinessArea 22
6.3.3 Modified BusinessArea 23
6.3.4 New BusinessProcess 23
6.3.5 Modified BusinessProcess 24
6.3.6 Requirements use case 24
6.3.7 New BusinessTransaction 24
6.3.8 Modified BusinessTransaction 25
6.3.9 New MessageDefinition 26
6.3.10 Modified MessageDefinition 26
6.3.11 New or modified BusinessRole 27
6.4 ISO 20022 registration 27
6.5 Preparation of migration 28
6.5.1 General 28
6.5.2 Convergence documentation 28
6.5.3 Coexistence documentation 31
6.5.4 Migration planning 32
7 Workflow for enhancing interoperability at the conceptual level **32**
7.1 General 32
7.2 Gap analysis 32
7.3 Development of ISO 20022 conformant BusinessComponents 33
7.3.1 General 33

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7.3.2 A new BusinessComponent 34
7.3.3 A modified BusinessComponent 35
7.4 ISO 20022 Registration 35
Annex A (informative) **Convergence documentation** **36**
Bibliography **39**

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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).

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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 second edition cancels and replaces the first edition (ISO 20022-5:2013), which has been technically revised.

The main changes are as follows:

— Activities and workflows for enhancing interoperability at the conceptual level have been added.

— Reverse engineering workflow has been amended based on previous experience.

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[2]. The remaining two levels of the Zachman Framework are equivalent to the implementations and the operational levels, respectively.

In ISO 20022-1, 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 ISO 20022-1 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. ISO 20022-1 defines a method that describes a process by which these models can be created and maintained by the modellers.

The model 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 message definitions and business processes and physical syntax implementations.

The ISO 20022 series is organized into the following parts.

— ISO 20022-1 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.

— This document 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.

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Financial services — Universal financial industry message scheme —

Part 5: Conceptual interoperability and reverse engineering

1 Scope

This document defines a scalable, methodical process to ensure business concept model interoperability and logical model alignment and reverse engineering.

This document provides guidance on conceptual interoperability and reverse engineering to explain how to extract relevant information from existing IndustryMessageSet, proprietary MessageSet or business model in order to prepare the submission to the ISO 20022 Registration Authority of equivalent, ISO 20022 conformant BusinessTransactions, BusinessComponents (including BusinessElements and Constraints) and MessageSets.

This document describes the activities of ISO 20022 conceptual interoperability and reverse engineering from the point of view of the user who wants to verify that the business functionality, covered by their own IndustryMessageSet, proprietary MessageSets or business model, is covered by ISO 20022 conformant BusinessTransactions, BusinessComponents (including BusinessElements and Constraints) and MessageSets.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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: Metamodel*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20022-1 and the following 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
IndustryMessage
message that offers a particular MessageDefinition functionality (possibly multi-functional) and whose MessageDefinition is part of an IndustryMessageSet

3.2
message item
element or field used at a particular place in a MessageDefinition

Note 1 to entry: This exact place is typically described by the MessagePath.

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