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Financial instrument global identifier (FIGI)

Identifiant global d'instruments financiers (FIGI)

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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 documents 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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by the Object Management Group (OMG) and was adopted, under the Fast Track procedure, by ISO/TC 68?SC 8, Financial services - Reference data for financial services.

This document is related to:

- ITU-T Recommendation X.902 (1995) | ISO/IEC 10746-2:1995, *Information Technology - Open Distributed Processing - Reference Model: Foundations*
- ITU-T Recommendation X.903 (1995) | ISO/IEC 10746-3:1995, *Information Technology - Open Distributed Processing - Reference Model: Architecture*
- ITU-T Recommendation X.920 (1997) | ISO/IEC 14750:1997, *Information Technology - Open Distributed Processing - Interface Definition Language*

Apart from this Foreword, and editorial changes to accommodate compatibility with the ISO format, the text of this document is identical with that for the OMG specification for Financial Instrument Global Identifier (FIGI), v1.0.

Introduction

The rapid growth of distributed processing has led to a need for a coordinating framework for this standardization and ITU-T Recommendations X.901-904 | ISO/IEC 10746, the Reference Model of Open Distributed Processing (RM-ODP) provides such a framework. It defines an architecture within which support of distribution, interoperability and portability can be integrated.

RM-ODP Part 2 (ISO/IEC 10746-2) defines the foundational concepts and modeling framework for describing distributed systems. The scopes and objectives of the RM-ODP Part 2 and the UML, while related, are not the same and, in a number of cases, the RM-ODP Part 2 and the UML specification use the same term for concepts which are related but not identical (e.g., interface). Nevertheless, a specification using the Part 2 modeling concepts can be expressed using UML with appropriate extensions (using stereotypes, tags, and constraints).

RM-ODP Part 3 (ISO/IEC 10746-3) specifies a generic architecture of open distributed systems, expressed using the foundational concepts and framework defined in Part 2. Given the relation between UML as a modeling language and Part 3 of the RM-ODP standard, it is easy to show that UML is suitable as a notation for the individual viewpoint specifications defined by the RM-ODP.

This International Standard defines a method for automating the counting of Function Points that is generally consistent with the Function Point Counting Practices Manual, Release 4.3.1 (IFPUG CPM) produced by the International Function Point Users Group (IFPUG). Guidelines in this specification may differ from those in the IFPUG CPM at points where subjective judgments have to be replaced by the rules needed for automation. The IFPUG CPM was selected as the anchor for this specification because it is the most widely used functional measurement specification with a large supporting infrastructure maintained by a professional organization.

INTERNATIONAL STANDARD ISO/DIS 23644

Information technology - Object Management Group Financial Instrument Global Identifier^{R} (FIGI^{R} 1.0)

1 Scope

1.1 Overview

The development of a Financial Instrument Global Identifier originated out of the recognition that chaos theory has nothing on the complexity generated everyday by the millions-perhaps billions-of security transactions that cross trading floors, clearinghouses, and exchanges all over the world. Almost every aspect of securities management is based on closed systems that use proprietary identifiers that are privately owned and licensed. Closing each deal is as much an exercise in translation as it is in transaction processing, as traders, investors, and brokers wrestle with multiple proprietary formats to determine what a security is, who owns it, how much it is worth, and when the deal should be closed. It introduces a tremendous amount of friction into the trade lifecycle and creates opaqueness where clarity is sought. In addition, the use of proprietary identifiers adds significant cost and overhead when users wish to integrate data from disparate sources or migrate to a different market data system.

The evolution of advanced symbologies has helped the securities industry grow, but the limitations and costs imposed by the closed systems have become more apparent as companies and institutions continue to integrate operations on a global scale. Proprietary symbology now stands as one of the most significant barriers to increased efficiency and innovation in an industry that sorely needs it. Moreover, the lack of common identifiers is a key roadblock to achieving the holy grail of straight-through processing (STP).

Points of Note:

Licensing fees require firms to pay for each symbol system they use. International firms bear an especially heavy burden, because they often have to license several symbologies in order to manage trading operations in several countries.

Restrictions imposed by proprietary symbologies prevent companies from easily mapping one set of codes to another. This hinders integration of market data from diverse sources as well as efforts to automate trade and settlement activities.

Market data consumers who adopt proprietary symbols for use in their own systems must not only pay licensing fees, but such symbols also lead to significant future costs associated with efforts to connect to emerging trading systems.

Proprietary trading environments may have worked well for years; but they are a byproduct of a time when data systems operated largely as islands that did not have to interoperate with other systems.

Current trends dictate a different approach. Markets, customers, and governments are demanding greater connectivity, transparency, and efficiency. What's more, the openness of Internet-based systems has profoundly altered the way businesses-and individuals-collect, manage, and share information. Thus, in addition to new regulations that demand clarity and accountability, the move to open symbology is being driven by growing investor and institutional demands.

Adopting an open system of shared symbology establishes the foundation for a tremendous leap forward in the efficient trade and settlement of securities as well as data management and reporting of financial instruments more generally.

Such a system will allow firms and technology service providers to shift resources from laborious, inefficient processes to new investments in tools and products that will better serve clients.

An open system answers the call for greater transparency. Eliminating the need to remove proprietary IDs and re-map financial instruments will greatly simplify the steps needed to migrate between market data platforms and trading systems. Availability of a central symbology reference will facilitate mapping between users' internal systems and create opportunities for integration and automation of the global enterprise. This is to say that this standard represents a novel solution in the market that is not currently covered by other identifiers currently in circulation.

This specification lays out the details of the Financial Instrument Global Identifier across two dimensions:

1. The specification of the structure of the Global Identifier itself—what is/is not valid as a Global Identifier and how a Global Identifier is constructed and validated.

2. An ontological model specifying the relationship between the Global Identifier and other closely related information.

This International Standard has been created with the clear understanding that a published interface for creating identifiers and linking together relevant parties, e.g., Certified Providers or the Registration Authority, through the use of technology is a critical part of the operationalization of this standard. While high level descriptions of the various types of organizations that need to be involved as well as high level descriptions of the interactions between such organizations has been included in this International Standard, they are included on the understanding that there will need to be a subsequent standard produced that details the necessary technical infrastructures and service level agreements for all participating organizations. To be clear, the technical specification of those services and service level agreements is out of scope for this document.

Global Identifier concepts are documented using two forms of definition:

1. A structured ontology specification of the concept, and its relationships to others, represented using the Web Ontology Language (OWL), in the form of (a) RDF/XML serialized OWL, (b) ODM (Ontology Definition Metamodel)-compliant ODM XMI, and (c) ODM-compliant UML XMI.

2. Natural language definitions which represent the concepts in natural language using the vocabulary of the finance industry.

Two controlled vocabularies in rdf format, one specifying the list of possible values for security types, one specifying the list of possible values for pricing sources. These lists are subject to growth over time as new security types are either invented or incorporated into FIGI and as new pricing sources are taken into account.

This International Standard covers both the content of the models, and the underlying architecture employed for producing and presenting the model.

This model is developed from a previously existing infrastructure that is currently active and had issued in excess of 150 million FIGI-compliant identifiers to date. The currently issued identifiers are freely available on a web site and through data files and are delivered upon request in bulk on a daily basis to interested parties. The purpose of this International Standard, however is to specify the structure of the Identifier itself and its relationship to key information elements rather than to specify the technology and related interfaces used to generate, access, and manage the identifiers.

2 Conformance

2.1 Introduction

An identifier is in conformance with this International Standard if, and only if, all of the following conditions are met:

Requirement	Description	Reference
Syntax of identifier	The identifier shall be a twelve (12) character string as follows: • Position 1: any upper case alphabetical character excluding vowels (but including "Y") • Position 2: any upper case alphabetical character excluding vowels (but including "Y") • Position 3: the letter "G" • Positions 4-11: any alphanumeric character excluding vowels (but including "Y") that, in combination with positions 1 and 2 does not constitute a duplicate of an existing string. • Position 12: check digit (see 6.1.2 for algorithm). Qualification: positions 1 and 2 cannot be the following sequences: BS, BM, GG, GB, VG	6.2.1
Uniqueness of identifier	The identifier shall be a twelve character string, as specified above, that has never been assigned as a Financial Instrument Global Identifier.	6.2.1
Composite Global Identifier	If a global identifier is to be designated as a Composite Global Identifier, it shall have at least one Global Identifier associated with it.	6.2.1
Share Class Global Identifier	If a global identifier is to be designated as a Share Class Global Identifier, it shall have at least one Composite Global Identifier associated with it.	6.2.1
Exchange Code	A global identifier will have either zero (0) or one (1) exchange code associated with it.	6.2.2
Financial Instrument Name	Each global identifier will have at least one name, which need not be unique to the identifier.	6.2.3
Pricing Source	A global identifier will have any finite number of pricing sources, including zero (0) associated with it.	6.2.4
Security Type	A global identifier will be associated with at least one (1) Security Type.	6.2.5
Ticker	A global identifer will have at least one ticker associated with it. That ticker need not be unique to the identifier.	6.2.6

There are no degrees of conformance.

2.2 Conformance as a Provider of Identifiers

2.2.1 Background & Approach

In order to support the accurate assignment of identifiers it is vital that a single financial instrument, appropriately understood, be identified by exactly one identifier. Further, it must be the case that a particular identifier, unless it is a composite or share class Identifier (see Clause 6), identifies exactly one financial instrument. In order to support this, then, it is necessary that when an Identifier is created two conditions are met:

1. Uniqueness of Identifier: the twelve character string (see Clause 6 for details) is unique and has never been used at any time for a FIGI.
2. Uniqueness of the Financial Instrument: the financial instrument being identified does not already have a FIGI associated with it.

In order to ensure that these two conditions are met there are two basic approaches that might be considered:

- One comprehensive system of record (perhaps with non-official copies embedded in other organizations) that can serve as the single point of reference against which to check Financial Instruments and Identifiers.
- A consistently applied mechanism by which both Identifiers and Financial Instruments are partitioned and distributed amongst multiple systems.

The second approach is essentially the approach taken in support of the LEI effort. This approach has had its challenges, but one might argue that it is now stable and operating properly and that since it is a working system that is fully specified, we would do well to adopt that model for FIGI. While it is certainly the case that the multiple provider approach to generating LEIs is better now than it was at the outset, the system is still far from perfect. Again, the key factor in assigning an identifier, be it for LEI or FIGI, is to ensure that the identifier is unique and that the thing being identified is unique. In the former case, the system in place for LEI is working fine; by distributing unique identifier characteristics across multiple providers, the only possibility of a duplicate identifier is in a case where one provider reuses a string. While this is a possibility, it is not a real problem. In the latter case, this amounts to ensuring that the entity identified does not already have an identifier associated with it. This, however, is where the distributed approach used to support LEI continues to break down, albeit not as badly as it did when it was initially introduced. Duplicate entities are being found on a weekly basis by one firm alone. The turn-around time to resolve these duplicates varies from hours to days. Again, while this is an improvement over the initial state of affairs, this is hardly an efficient model and clearly is sub-optimal in supporting near real-time markets.

The alternative model, leveraging a single system of record clearly solves this problem. By having a single system of record the possibility that two organizations can register the same entity is eliminated. Therefore, the single system of record approach is preferred. To that end, the following distinction needs to be made:

- Registration Authority (RA): the Registration authority serves as both an issuer of Identifiers and as a comprehensive system of record of the registered Identifiers.
  - The organization that will serve as the Registration Authority will be specified by the FDTF of the OMG.
- Certified Provider (CP): a Certified Provider (there can potentially be many) serves as an issuer of Identifiers and can elect to maintain a comprehensive inventory of Identifiers for their own purposes.
  - Each CP will elect an unused two consonant prefix to be used as the first two characters of the identifiers that they create.

The details of how two letter prefixes will be assigned is documented in Annex C. The details of how new Identifiers are created, either by a CP or through a request service is documented in Annex B.

2.2.2 Conformance

In order to conform to this specification, in addition to adhering to the technical requirements set out in Annex B, a Certified Provider will be required to:

- Specify only identifiers that are compliant with the technical specifications of the identifier as specified in Clause 6.
- Specify only identifiers that begin with the two letter prefix that is assigned to their organization as per the process outlined in Annex C.
- Take reasonable steps to ensure that each identifier they issue is unique within their assigned domain of possible identifiers.
- Provide an appropriate description of the financial instrument, which may vary according to the type of financial instrument, so as to provide the Registration Authority the ability to confirm the uniqueness of the instrument.

2.3 Conformance as a Consuming Application

A consuming application is in conformance with this International Standard provided that it is configured to ingest and store a syntactically correct Financial Instrument Global Identifier, a Composite Global Identifier, and a Share Class Global Identifier. Optionally, a consuming application may, but is not required to, ingest and store any or all of the remaining data points associated with an Identifier, e.g., the associated definition.

3 References

3.1 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

Reference	Description
[OWL 2]	OWL 2 Web Ontology Language Quick Reference Guide (Second Edition), W3C Recommendation 11 December 2012. Available at http://www.w3.org/TR/2012/REC-owl2-quick-reference-20121211/.
[RDF 1.1]	RDF 1.1 Concepts and Abstract Syntax, W3C Recommendation, 25 February 2014. Available at http://www.w3.org/TR/2014/REC-rdf11-concepts-20140225/
[RDF 1.1 Schema]	RDF Schema 1.1. W3C Recommendation, 25 February 2014. Available at http://www.w3.org/TR/2014/REC-rdf-schema-20140225/.
[SKOS]	SKOS Simple Knowledge Organization System Reference, W3C Recommendation 18 August 2009. Available at http://www.w3.org/TR/2009/REC-skos-reference-20090818/.

[W3C Datatypes in RDF and OWL]	XML Schema Datatypes in RDF and OWL, W3C Working Group Note 14 March 2006, Available at http://www.w3.org/TR/2006/NOTE-swbp-xsch-datatypes-20060314/.
[XML Schema Datatypes]	W3C XML Schema Definition Language (XSD) 1.1 Part 2: Datatypes. W3C Recommendation, 5 April 2012. Available at http://www.w3.org/TR/xmlschema11-2/.
[Dublin Core]	DCMI Metadata Terms, Issued 2013-06-14 by the Dublin Core Metadata Initiative. Available at http://www.dublincore.org/documents/dcmi-terms/.
[MOF]	Meta Object Facility (MOF™) Core, v2.4.1. OMG Available Specification, formal/2011-08-07. Available at http://www.omg.org/spec/MOF/2.4.1/.
[MOF XMI]	MOF 2/XMI (XML Metadata Interchange) Mapping Specification, v2.4.1. OMG Available Specification, formal/2011-08-09. Available at http://www.omg.org/spec/XMI/2.4.1/.
[ODM 1.1]	Ontology Definition Metamodel (ODM), Version 1.1. Available at http://www.omg.org/spec/ODM/1.1/.
[OMG AB Specification Metadata]	OMG Architecture Board recommendations for specification of ontology metadata, Available at http://www.omg.org/techprocess/ab/SpecificationMetadata.rdf.
[UML2]	Unified Modeling Language™ (UML®), version 2.4.1. OMG Specification, formal/2011-08-06. Available at http://www.omg.org/spec/UML/2.4.1/.

4 Terms and Definitions

4.1 Specific Terminology

The human readable definitions have been constructed by and with the input of business subject matter experts. In cases where there are FIBO definitions available either the FIBO definitions were used or they were incorporated into the formal definitions.

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

Ontology

Definition: A formalization of a conceptualization. For the purposes of this specification the formalization is in OWL and the conceptualization is that of business subject matter specific to the identification of financial instruments.

Taxonomy

Definition: A set of terms which stand in some classification relation to one another.

Vocabulary

Definition: A set of words, each giving one or more formal definitions which apply to a meaningful concept that is referred to by that word.

4.2 Financial Terms

Financial Instrument

Definition: Financial instruments are cash, evidence of an ownership interest in an entity, or a contractual right to receive, or deliver, cash or another financial instrument.

4.3 Identifier

In general terms, an Identifier can be understood as follows:

An identifier is a name that identifies (that is, labels the identity of) either a unique object or a unique class of objects, where the "object" or class may be an idea, physical [countable] object (or class thereof), or physical [noncountable] substance (or class thereof). The abbreviation ID often refers to identity, identification (the process of identifying), or an identifier (that is, an instance of identification). An identifier may be a word, number, letter, symbol, or any combination of those.

The words, numbers, letters, or symbols may follow an encoding system (wherein letters, digits, words, or symbols stand for(represent) ideas or longer names) or they may simply be arbitrary. When an identifier follows an encoding system, it is often referred to as a code or ID code. Identifiers that do not follow any encoding scheme are often said to be arbitrary IDs; they are arbitrarily assigned and have no greater meaning. (Sometimes identifiers are called "codes" even when they are actually arbitrary, whether because the speaker believes that they have deeper meaning or simply because he is speaking casually and imprecisely.)

The above definition is general and applies to a range of items in this standard including Financial Instrument Names and Financial Instrument Identifiers. A more precise definition is, however, called for with respect to Financial Instrument Global Identifiers.

For the purposes of this International Standard an identifier when applied to the FIGI is understood as:

Definition: A unique string of characters which is semantically meaningless, but adheres to specific syntax restrictions.

Unpacking this:

Unique:

Definition: An item is unique if, and only if, within its domain, understood in this contect to include all and only FIGIs, it does not duplicate any other item either currently or historically specified as an identifier within the domain where "duplicate" means consisting of exactly the same twelve characters in exactly the same order.

Uniqueness does not apply across domains. That is to say, that there is no guarantee that a given string may not be used as an Identifier outside of FIGI. That said, considerable effort was employed to reduce the chances that a given Identifier would not be a duplicate of another Identifier within the financial domain.

To say that the identifier is semantically meaningless is to say that, beyond syntax restrictions, the assignment of characters to given positions within the twelve character string is entirely without semantic content. The only exceptions to this clause are slight restrictions to which two letters can occupy the first two positions, the letter that shall occupy the third position, and the value of the last character, which is a calculated, though still meaningless, check digit.