

# ISO/IEC 15944-10:2013-02 (E)

## Information technology - Business Operational View - Part 10: IT-enabled coded domains as semantic components in business transactions

---

<b>Contents</b>		<b>Page</b>
<b>Foreword</b>	.....	<b>vi</b>
<b>0</b>	<b>Introduction</b>	<b>vii</b>
<b>0.1</b>	<b>Overview of purpose and nature of coded domains</b>	<b>vii</b>
<b>0.2</b>	<b>Benefits of the use of coded domains</b>	<b>viii</b>
<b>0.3</b>	<b>Identification, mapping and IT-enablement of existing standards for widely-used code sets</b>	<b>ix</b>
<b>0.4</b>	<b>Link to fundamental components in Business Transaction Model (BTM)</b>	<b>xi</b>
<b>0.5</b>	<b>IT-enabled and content predefined Semantic Components</b>	<b>xii</b>
<b>0.6</b>	<b>Coded domains as reusable business objects</b>	<b>xiii</b>
<b>0.7</b>	<b>Use of "Person", "organization" and "party" in the context of business transaction and commitment exchange</b>	<b>xiv</b>
<b>0.8</b>	<b>Importance and role of terms and definitions</b>	<b>xv</b>
<b>0.9</b>	<b>Use of "identifier" as "identifier (in business transaction)" to prevent ambiguity</b>	<b>xvi</b>
<b>0.10</b>	<b>Organization and description of document</b>	<b>xvii</b>
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>1.1</b>	<b>Statement of Scope</b>	<b>1</b>
<b>1.2</b>	<b>Exclusions</b>	<b>2</b>
<b>1.3</b>	<b>Aspects currently not yet addressed</b>	<b>2</b>
<b>1.3.1</b>	<b>Addressing "Quadrant B, C &amp; D" in Figure 5</b>	<b>2</b>
<b>1.3.2</b>	<b>Use of coded domains in support of the "Process" component in the Business transaction model</b>	<b>2</b>
<b>1.3.3</b>	<b>Use of coded domains with respect to Persons and in particular "individuals" and associated privacy protection requirements</b>	<b>2</b>
<b>1.3.4</b>	<b>Use of coded domains in support of "public policy" requirements and in particular individual accessibility</b>	<b>2</b>
<b>1.3.5</b>	<b>Detailed levels of rules pertaining to change management aspects of coded domains</b>	<b>3</b>
<b>1.3.6</b>	<b>Differentiation of categories and levels of Source Authorities (SA) for coded domains</b>	<b>3</b>
<b>1.4</b>	<b>IT-systems environment neutrality</b>	<b>3</b>
<b>2</b>	<b>Normative references</b>	<b>3</b>
<b>3</b>	<b>Terms and definitions</b>	<b>4</b>
<b>4</b>	<b>Symbols and abbreviation</b>	<b>38</b>
<b>5</b>	<b>Fundamental principles governing coded domains</b>	<b>38</b>
<b>5.1</b>	<b>Introduction</b>	<b>38</b>
<b>5.2</b>	<b>Need to be able to use coded domains in support of commitment exchange</b>	<b>40</b>
<b>5.3</b>	<b>Coded domains based on clear, predefined rules, i.e., "rule-based"</b>	<b>41</b>
<b>5.3.1</b>	<b>Requirements of rule-based coded domains as a whole</b>	<b>41</b>
<b>5.3.2</b>	<b>Rule-base for IT enablement of a coded domain</b>	<b>43</b>
<b>5.3.3</b>	<b>Rule-base for structuring a coded domain</b>	<b>43</b>
<b>5.4</b>	<b>Separation of the IT interface from human interface requirements</b>	<b>44</b>
<b>5.5</b>	<b>Specification and representation of coded domains in an IT-platform neutral manner</b>	<b>45</b>
<b>6</b>	<b>Business operational view identification and description of coded domains</b>	<b>46</b>
<b>6.1</b>	<b>Construct of coded domain</b>	<b>46</b>
<b>6.1.1</b>	<b>Identification of coded domains</b>	<b>47</b>
<b>6.1.2</b>	<b>Levels of Semantic unambiguity</b>	<b>48</b>

6.1.3	Rule-base of a coded domain .....	49
6.1.4	Table of ID codes and HIEs .....	49
6.2	Characteristics of coded domains .....	49
6.2.1	"for free" or "for a fee" coded domains .....	49
6.2.2	Exhaustiveness of coded domains .....	50
6.2.3	Semantic granularity .....	51
6.2.4	Openness of coded domains .....	51
7	Rules governing rule-base of coded domains .....	52
7.1	Introduction .....	52
7.2	Specification of a boundary of a coded domain and inclusion of its members .....	53
7.3	Specification of exclusionary rules for a coded domain .....	54
7.4	Source(s) of rule-base governing a coded domain .....	54
8	Rules for management of ID codes in coded domains .....	55
8.1	Introduction .....	55
8.2	Generic rules for the management of a coded domain .....	55
8.3	Rules governing assignment of ID codes .....	55
8.4	Rules governing the change management of entries in the coded domain .....	56
8.4.1	Change management of ID codes .....	56
8.4.2	Change management of HIEs .....	57
8.5	Registration of user extensions .....	57
9	Rules for specifying Human Interface Equivalent (HIEs) to an ID Code in a coded domain .....	57
9.1	Multiple Human Interface Equivalent (HIEs) for an ID code in a coded domain .....	57
9.2	Standard structure for semantics of a Human Interface Equivalent (HIE) .....	58
9.3	Rules governing linguistic (written) representations as Human Interface Equivalent (HIEs) of ID codes as required values in coded domains .....	59
9.4	Individual accessibility of HIEs of coded domains .....	59
9.5	Rules governing composite semantics .....	60
10	Coded domain and controlled vocabularies .....	60
10.1	Introduction .....	60
10.2	Rules common to controlled vocabularies and coded domains .....	61
10.3	Rules governing a controlled vocabulary .....	61
10.4	Rules governing a coded domain .....	62
11	Rules governing the registration of coded domains as re-usable business objects .....	63
11.1	Principles of registration .....	63
11.2	Process of registration .....	65
11.3	Coded Domain Registration scheme .....	65
12	IT-enablement of coded domains .....	66
12.1	Introduction .....	66
12.2	Templates for IT-enabled coded domains - Attributes for Scoping an Open-edi scenario (OeS) .....	66
12.2.1	Purpose .....	66
12.2.2	Template structure and content .....	66
12.3	Template for Scoping Open-edi scenarios .....	66
12.4	Specification and consolidated template of attributes of Open-edi scenarios, roles, information bundles (IBs) and semantic components (SCs) .....	70
Annex A (normative)	Coded domain registration administration attributes .....	74
Annex B (normative)	Use of IT-enabled coded domains to ensure semantic interoperability in support of the "UN Convention on the Rights of Persons with Disabilities" .....	79
Annex C (informative)	Concept and definition of "coded domain" .....	81
Annex D (informative)	Case Study: Example of "e-potato" .....	87

<b>Annex E (informative) Case study: Example of a coded domain with two writing systems for Human Interface Equivalents (HIEs) of a set of ID codes - in Russian use of the Cyrillic alphabet and the romanized form .....</b>	<b>89</b>
<b>Annex F (informative) Case study: Example of coded domain in Matrix form and XML format as Annex G (informative) Determining whether the membership in a coded domain is exhaustive or non-exhaustive .....</b>	<b>99</b>
<b>Annex H (informative) Examples of identification of different object classes within a coded domain through the use of semantic qualifiers .....</b>	<b>104</b>
<b>Bibliography .....</b>	<b>112</b>
<b>Index of Figures Figure 1 -- Need for standard and methodologies for coded domains .....</b>	<b>x</b>
<b>Figure 2 -- Business Transaction Model -- Fundamental components (Graphic Illustration) .....</b>	<b>xi</b>
<b>Figure 3 -- Relation of "recorded information", "data" and "computer system" in electronic business transactions / Open-edi .....</b>	<b>xii</b>
<b>Figure 4 -- Relations "data" and "data elements" in electronic business transactions / Open-edi .....</b>	<b>xii</b>
<b>Figure 5 -- Purpose of coded domain as IT-enabled and content predefined semantic components .....</b>	<b>xiii</b>
<b>Figure 6 -- Illustration of Elements of a Data Structure for Human Linguistic Equivalents of an ID Code - Written form .....</b>	<b>58</b>
<b>Index of Tables Table 1 -- Construct of a coded domain .....</b>	<b>46</b>
<b>Table 2 -- Level of Semantic Unambiguity based on the UN Convention of rights of persons with disabilities (in support of a collaboration space pertaining to commitment exchange) .....</b>	<b>48</b>
<b>Table 3 -- Template for specifying the scope of an Open-edi scenario .....</b>	<b>67</b>
<b>Table 4 -- Consolidated template of attributes of Open-edi scenarios (OeS), roles, information bundles (IBs) and semantic components (SCs) .....</b>	<b>71</b>
<b>Table A.1 -- A.Administrative attributes for registration of a coded domain as a business object .....</b>	<b>76</b>
<b>Table B.1 -- Codes representing levels of semantic unambiguity in support of semantic interoperability equivalency requirements .....</b>	<b>80</b>
<b>Table D.1 -- Illustrating IT Interfaces and different HIEs using the WCO HS code for "potato" .....</b>	<b>88</b>
<b>Table E.3 -- Use of Columns in Table E.4 .....</b>	<b>89</b>
<b>Table E.4 -- eBusiness vocabulary terms in Russian Cyrillic Alphabetic order .....</b>	<b>90</b>
<b>Table E.5 -- Use of Columns in Table E.6 .....</b>	<b>90</b>
<b>Table E.6 -- eBusiness vocabulary terms in Russian Romanized Alphabetic order .....</b>	<b>91</b>
<b>coded domain .....</b>	<b>100</b>
<b>Table H.1 -- Identification of Essential Data Elements in an ISO 3166-1 entry .....</b>	<b>106</b>
<b>Table H.2 -- Use of semantic qualifier codes for ISO 3166-1 in an Open-edi and eBusiness context .....</b>	<b>107</b>
<b>Table H.3 -- Identification of essential data elements in an ISO 4217 entry .....</b>	<b>110</b>
<b>Table H.4 -- Use of semantic qualifier codes for ISO 4217 in an Open-edi and eBusiness context .....</b>	<b>111</b>