TECHNICAL SPECIFICATION

ISO/TS 15000-5

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Electronic Business Extensible Markup Language (ebXML) —

Part 5:
ebXML Core Components Technical Specification, Version 2.01(ebCCTS)

Commerce électronique en langage de balisage extensible (ebXML) —

Partie 5: Spécification technique des composants principaux (ebXML), Version 2.01(ebCCTS)

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Foreword

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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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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/TS 15000-5 was prepared jointly by Technical Committee ISO/TC 154, *Processes, data elements and documents in commerce, industry and administration* in collaboration with UN/CEFACT.

ISO/TS 15000 consists of the following parts, under the general title *Electronic business eXtensible mark-up language (ebXML)*:

— *Part 1: Collaboration-protocol profile and agreement specification (ebCPP)*

— *Part 2: Message service specification (ebMS)*

— *Part 3: Registry information model specification (ebRIM)*

— *Part 4: Registry services specification (ebRS)*

— *Part 5: ebXML Core Components Technical Specification, Version 2.01(ebCCTS)*

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UN/CEFACT

United Nations Centre for Trade Facilitation and Electronic Business

Core Components Technical Specification –
Part 8 of the ebXML Framework

15 November 2003
Version 2.01

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United Nations Centre for Trade Facilitation and Electronic Business

1 Status of This Document

This *UN/CEFACT Technical Specification* has been developed in accordance with the UN/CEFACT/TRADE/22 Open Development Process (ODP) for Technical Specifications. It has been approved by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) Techniques and Methodologies Group (TMG) for promulgation as a UN/CEFACT Technical Specification in accordance with Step 7 of the ODP.

This document contains information to guide in the interpretation or implementation of ebXML concepts.

Distribution of this document is unlimited.

The document formatting is based on the Internet Society's Standard RFC format.

This version: *Core Components Technical Specification – Part 8 of the ebXML Framework*, Version 2.01 of 15 November 2003

Previous version: *UN/CEFACT – Core Components Technical Specification*, Version 2.0 of 11 August 2003

This edition is an updated version of Core Components Technical Specification Version 2.0 (first published 11 August 2003); it merely incorporates a title correction and minor first-edition errata related to ebXML references as a convenience to readers.

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2   Core Components Technical Specification Administration

The leaders and editors express gratitude to the significant number of participants who contributed to the successful completion of this document.

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4   Introduction

This *Core Components Technical Specification* describes and specifies a new approach to the well-understood problem of the lack of information interoperability between applications in the e-business arena. Traditionally, standards for the exchange of business data have been focused on static message definitions that have not enabled a sufficient degree of interoperability or flexibility. A more flexible and interoperable way of standardising *Business Semantics* is required. The UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business) *Core Component* solution described in this specification presents a methodology for developing a common set of semantic building blocks that represent the general types of business data in use today and provides for the creation of new business vocabularies and restructuring of existing business vocabularies.

The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL, when they appear in this document, are to be interpreted as described in Internet Engineering Task Force (IETF) Request For Comments (RFC) 2119.1

4.1   Scope and Focus

This *Core Components Technical Specification* can be employed wherever business information is being shared or exchanged amongst and between enterprises, governmental agencies, and/or other organisations in an open and worldwide environment. The *Core Components User Community* consists of business people, business document modellers and business data modellers, *Business Process* modellers, and application developers of different organisations that require interoperability of business information. This interoperability covers both interactive and batch exchanges of business data between applications through the use of Internet and Web based information exchanges as well as traditional Electronic Data Interchange (EDI) systems.

This specification will form the basis for standards development work of business analysts, business users and information technology specialists supplying the content of and implementing applications that will employ the UN/CEFACT *Core Component Library* (CCL). The *Core Component Library* will be stored in a UN/CEFACT repository and identified in an ebXML compliant registry.

Due to the evolving nature of the UN/CEFACT *Core Component Library*, the specification includes material that focuses on the business community doing further discovery and analysis work. Some of the contents of this specification are not typical of this type of technical document. However, they are critical for successful adoption and standardization in this area to move forward.

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¹   *Key words for use in RFCs to Indicate Requirement Levels* - Internet Engineering Task Force, Request For Comments 2119, March 1997, http://www.ietf.org/rfc/rfc2119.txt?number=2119

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4.2 Structure of this Specification

Due to the diversity of the intended audience, this document has been divided into five main Sections.

- Section 5: Working Process and Methodology for Business Users—Discovery, Harmonization, Assessment and How to Use [informative]

- Section 6: Technical Details—*Core Components* and *Context* [normative]

- Section 7: Technical Details—Storage and Metadata [normative]

- Section 8: Technical Details— Permissible *Representation Terms* and Approved *Core Component Type*, *Content*, and *Supplementary Components* [normative]

- Section 9: Definition of Terms [normative]

Sections 5, 6, 7 and 8 are complementary, but may also be used independently of each other. Section 5 is informative. A business audience may choose to read through the working process and methodology section (Section 5) and only reference the Technical Details (Sections 6, 7 and 8) as needed. Sections 6, 7 and 8 are normative. A technical audience may choose to focus on the technical details (Sections 6, 7, and 8), referring to the methodology (Section 5) and example (published as a supplemental document) sections as appropriate, using the current permissible *Representation Terms* and approved *Core Component Type*, *Content*, and *Supplementary Components* (Section 8) and the glossary (Section 9).

In addition, the UN/CEFACT Forum will prepare supplemental documents that may be used in conjunction with this *Core Components Technical Specification*. These supplemental documents will include:

- *Message Assembly* – expands on the *Assembly* principles and *Constraints Language* contained in the *Core Components Technical Specification* and provides specific methodology for assembling higher level *Business Information Entities* for electronic messages.

- *Core Components Primer* – details how the contents of Sections 5, 6, and 7 would be used in practice to create a library of *Core Components* and *Business Information Entities*.

- *Catalogue of Core Components* – represents the work of various organizations working in a joint endeavour to develop and publish semantically correct and meaningful information exchange parcels.

4.2.1 Notation

[Definition] – A formal definition of a term. Definitions are normative.

[Example] – A representation of a definition or a rule. Examples are informative.

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[Note] – Explanatory information. Notes are informative.

[Rn] – Identification of a rule that requires conformance to ensure discovered *Core Components* are properly discovered, named and stored. The value R is a prefix to categorise the type of rule where R=A for Conformance rule, R=B for *Business Information Entity* rule, R=C for *Core Component* rule, R=D for *Data Type* rule, or R=S for *Storage* rule; and n (1..n) indicates the sequential number of the rule]. Rules are normative. In order to ensure continuity across versions of the specification, rule numbers that are deleted will not be re-issued, and any new rules will be assigned the next higher number - regardless of location in the text.

Italics – All words appearing in italics, when not titles or used for emphasis, are special terms defined in Section 9.

`Courier` – All words appearing in bolded `courier font` are values or objects.

4.3   Conformance

Applications will be considered to be in full conformance with this technical specification if they comply with the content of normative sections, rules and definitions.

[A1]   Conformance shall be determined through adherence to the content of normative sections, rules and definitions.

4.4   Related Documents

The following documents provided significant levels of influence in the development of this document:

— ebXML Technical Architecture Specification v1.04

— ebXML Business Process Specification Schema v1.01

— OASIS/ebXML Registry Information Model v2.0

— OASIS/ebXML Registry Services Specification v2.0

— ebXML Requirements Specification v1.06

— OASIS/ebXML Collaboration-Protocol Profile and Agreement Specification v2.0

— OASIS/ebXML Message Service Specification v2.0

— ebXML Technical Report, Business Process and Business Information Analysis Overview v1.0

— ebXML Business Process Analysis Worksheets & Guidelines v1.0

— ebXML Technical Report, E-Commerce Patterns v1.0

— ebXML Technical Report, Catalog of Common Business Processes v1.0

— ebXML Technical Report, Core Component Overview v1.05

— ebXML Technical Report, Core Component Discovery and Analysis v1.04

— ebXML Technical Report, Context and Re-Usability of Core Components v1.04

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— ebXML Technical Report, Guide to the Core Components Dictionary v1.04

— ebXML Technical Report, Naming Convention for Core Components v1.04

— ebXML Technical Report, Document Assembly and Context Rules v1.04

— ebXML Technical Report, Catalogue of Context Categories v1.04

— ebXML Technical Report, Core Component Dictionary v1.04

— ebXML Technical Report, Core Component Structure v1.04

— Information Technology - Metadata registries: Framework for the Specification and Standardization of Data Elements, International Standardization Organization, ISO 11179-1

— Information Technology - Metadata registries: Classification of Concepts for the Identification of Domains, International Standardization Organization, ISO 11179-2

— Information Technology - Metadata registries: Registry Metamodel, International Standardization Organization, ISO 11179-3

— Information Technology - Metadata registries: Rules and Guidelines for the Formulation of Data Definitions, International Standardization Organization, ISO 11179-4

— Information Technology - Metadata registries: Naming and Identification Principles for Data Elements, International Standardization Organization, ISO 11179-5

— Information Technology - Metadata registries: Framework for the Specification and Standardization of Data Elements, International Standardization Organization, ISO 11179-6

4.5   Overview

This *Core Components Technical Specification* provides a way to identify, capture and maximize the re-use of business information to support and enhance information interoperability across multiple business situations. The specification focuses both on human-readable and machine-processable representations of this information.

The *Core Components* approach described in this document is more flexible than current standards in this area because the semantic standardisation is done in a syntax-neutral fashion. Using *Core Components* as part of the ebXML framework will help to ensure that two trading partners using different syntaxes [e.g. Extensible Markup Language (XML) and United Nations/EDI for Administration, Commerce, and Transport (UN/EDIFACT)] are using *Business Semantics* in the same way on condition that both syntaxes have been based on the same *Core Components*. This enables clean mapping between disparate message definitions across syntaxes, industry and regional boundaries.

UN/CEFACT *Business Process* and *Core Component* solutions capture a wealth of information about the business reasons for variation in message semantics and structure. In the past, such variations have introduced incompatibilities. The *Core Components* mechanism uses this rich information to allow identification of exact similarities and differences between semantic models. Incompatibility becomes incremental rather than wholesale, i.e. the detailed points of difference are noted, rather than a whole model being dismissed as incompatible.

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4.6   Key Concepts

The *Core Components Technical Specification* key concepts cover two focus areas—*Core Components* and *Business Information Entities*. Each of these focus areas is discussed in the following subsections. In each subsection concepts are introduced, followed by a normative definition and, where appropriate, an example for each.

4.6.1   Key Core Component Concepts

The central concept of this specification is the *Core Component*. The *Core Component* is a semantic building block, which is used as a basis to construct all electronic business messages.

> [Definition] *Core Component* (CC)
>
> A building block for the creation of a semantically correct and meaningful information exchange package. It contains only the information pieces necessary to describe a specific concept.

There are four different categories of *Core Components*: *Basic Core Component*, *Association Core Component*, *Core Component Type* and *Aggregate Core Component*. The following definitions explain each of these:

> [Definition] *Basic Core Component* (BCC)
>
> A *Core Component* which constitutes a singular business characteristic of a specific *Aggregate Core Component* that represents an *Object Class*. It has a unique *Business Semantic* definition. A *Basic Core Component* represents a *Basic Core Component Property* and is therefore of a *Data Type*, which defines its set of values. *Basic Core Components* function as the *Properties* of *Aggregate Core Components*.

> [Definition] *Association Core Component* (ASCC)
>
> A *Core Component* which constitutes a complex business characteristic of a specific *Aggregate Core Component* that represents an *Object Class*. It has a unique *Business Semantic* definition. An *Association Core Component* represents an *Association Core Component Property* and is associated to an *Aggregate Core Component*, which describes its structure.

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