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AGREEMENT

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Guidelines for the design, implementation and operation of a product property server (ePPS)

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Foreword

This CEN Workshop Agreement on "Guidelines for the design, implementation and operation of a product property server" has been prepared by the CEN Workshop "Multilingual eCataloguing and eClassification in eBusiness" in the context of the project "electronic Product Property Servers" (ePPS). The production of this CWA was approved at the Workshop eCAT plenary meeting on 4 February 2008.

Over thirty companies and organizations from industry, SMEs, software developers, consulting companies, universities and research centers specialized in cataloguing and product property servers participated in the CEN Workshop eCAT – ePPS project.

This CWA is the seventh CWA developed within the Workshop eCAT. The list of already available CWAs is available under "References".

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The following companies/organizations endorsed the CWA:

- AFIM (France)
- CNCTST (China)
- DIN e.V. (Germany)
- ECCMA (USA)
- eCI@ss – International Classification System (Germany)
- ETIM e.V. (Germany)
- ETIM International (The Netherlands)
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- funSTEP
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- Renault (France)
- SEEM (Czech Republic)
- Semaino Technologies GmbH (Germany)
- TermNet – the International Network for Terminology
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Introduction

A fundamental requirement for implementing full e-business is the ability to exchange information about products between different business partners and their software systems. As far as product-numbers, prices, delivery information, etc. are concerned, exchange is possible on the basis of general models which are applicable for any kind of product. However, the technical diversity of products leads to a diversity of technical descriptions. This makes it impossible to define a general model covering all aspects of all types of products in a concise way: The description of e.g. bolts and washers requires fundamentally different information than the description of integrated circuits or refrigerators.

Whereas STEP tries to define a big number of models for various domains to describe e.g., geometry or other representation models of a product, the exchange of technical product information in e-business and e-engineering is basically done by describing products by their characteristics or properties. This information exchange is normally based on a meta data approach: Information about a property of a product is exchanged as a pair (property_ref, property_value), where the property_ref is an identifier of a concept in a product dictionary (often called ontology or classification). For the correct interpretation of the property_value, the receiving system has to refer to the product dictionary, where the meaning of the property is defined (textually and possibly supported by graphical means) and further information is available like names (in different languages), synonyms, data type, unit of measure, relationship to other concepts, etc. Thus, we have a very simple structure for the exchange, but we need additional resources which are referenced from this exchange structure.

To provide such resources, a number of organizations have started to build dictionaries to provide the required meta data which can describe the content of a product catalogue. This started with the provision of paper lists of dictionary elements (product classes and their properties) in the standard IEC 61360-4, but today the trend is towards online databases containing the dictionary elements and providing web based and potentially automatic access to the dictionary elements. The range of meta data provided varies dramatically: Some providers only provide terminological information, others provide more information which is based on specific data models, and others provide quite different types of meta data like code sets or graphical symbols.

The provision of an electronic server which allows users to access data has a lot of implications: The meta data needs to be organized in a structured way, access mechanisms need to be provided to allow users to download data and to upload proposals, a business model has to be created to ensure the operation of the server, maintenance of the meta data has to be ensured in an open way to allow participation of the involved organizations and people, etc. Thus, the operation of an electronic Product Property Server is by no means an easy task and requires a lot of consideration.

Scope

The goal of this CWA is to consider various aspects of ePPS (electronic product property servers) which are operated to support the management, distribution and maintenance of meta data dictionaries. In part 1, technical aspects and standards will be discussed, in part 2, organizational aspects like requirements for all kinds of workflows, the evaluations of business models comprising also draft licensing agreements, copyright management issues, etc. are addressed, and in part 3, the user aspects are discussed. To prepare this CWA, the following activities were accomplished.

- Market analysis to identify current implementations and research on requirements and needs
- Analysis of current implementations including a survey with a standardized questionnaire
- Examination of the returned questionnaires and consolidation of learning into a list of requirements and needs

Part 1 of this CWA contains information about dictionary models which are in use for modeling dictionary information and exchange mechanisms for dictionary information. Specifically the standard ISO 29002 is described as a mechanism to exchange information from various dictionaries by means of a single interface. Since ISO 8000 puts specific requirements on the exchange of catalogues and makes dictionaries an indispensable element of this activity, the basic concepts of ISO 8000 are also discussed.

Part 2 of this CWA contains information about the workflows which were developed and are used by the organizations providing ePPS-systems as well as the legal requirements to distribute and use content. Two questionnaires were sent out to dictionary providers and to dictionary users to survey existing implementations and learn about requirements from providers and industry perspective. Also skills and competences required to participate in the development and maintenance of content are discussed. Dictionary providers offer different business models on how to participate in content generation and also how content of the dictionaries is made available to users.

Part 3 discusses ePPS from the point of companies and industries. It describes a number of scenarios in which ePPS can be used beneficially and gives information about organizational requirements for companies to use external ePPSs and illustrates how the use of and the direct connection to an ePPS can support the automation of catalogue related processes. In addition, in Part 3 a number of strategies and measures are proposed (which to a big degree have already been started) for spreading the knowledge on the use of ePPS in industry and in SMEs. Part 3 also contains checklists which may guide companies and standard providers in their way to realize an ePPS for their meta data.

Thus, the scope of this CWA contains:

- Overview on state of the art of product property servers in general
- Basic requirements concerning the data model under specific consideration of available standards, insurance of interoperability with users and other product property servers, multilingualism and requirements of people with special needs, etc.;
- Input/import and output/export formats, again under consideration of available standards
- Requirements for (web) services which are expected by users from a product property server
- Means to support a syntactic and semantic interoperability between different product property servers, in particular web services as defined in ISO 29002 and necessary specifications to relate other dictionary models, in particular ISO 13584, to the web service models and interfaces

- Requirements for keeping consistency between meta data and product data (validation of data, requirements coming e.g. from ISO 8000-110)
- Research of existing projects and data formats (e.g. VDI 3805) within HVAC industry dealing with metadata and compilation of a list of relevant aspects for a product property server in this field
- Requirements of the workflow management of development, distributed updating and maintenance of metadata content
- Requirements concerning workflows for the preparation of multilingual product property data, the control of correspondence between the data and the metadata, etc.
- Legal and economic requirements of a PPS (e.g. IPR, business model, licensing, etc.)
- Verification of available implementations regarding business model, licensing and IPRs
- Industry requirements on provision of metadata (e.g. access, format, tools, training, etc.)
- Types of skills and competences required
- Organizational requirements for companies to effectively use ePPS
- Activities to spread the knowledge on the use of ePPS and meta data in exchange processes
- Checklists to guide companies and standards organizations to develop their ePPS for managing their meta data

Normative References

CWA 15294:2005 — ePDC project — Dictionary of Terminology for Product Classification and Description

CWA 15295:2005 — ePDC project — Description of References and Data Models for Classification

CWA15556-1:2006 — Gen-ePDC project — Product Description and Classification — Part 1: New Property Library

CWA 15556-2:2006 — Gen-ePDC project — Product Description and Classification - Part 2: Product Classes with sets of properties

CWA 15556-3:2006 - Gen-ePDC project - Product Description and Classification - Part 3: Results of development in harmonization of product classifications and in multilingual electronic catalogues and their respective data modelling

ISO 13584-42:2008 Ed.2: Industrial automation systems and integration — Parts library — Part 42: Description methodology: Methodology for structuring part families (to be published)

ISO/TS 29002-5:2009: Industrial automation systems and integration — Exchange of characteristic data — Part 5: Identification scheme

ISO/TS 29002-20:2009: Industrial automation systems and integration — Exchange of characteristic data — Part 20: Concept dictionary resolution services (to be published)

ISO 8000-110:2009: Data Quality — Part 110: Master data: Exchange of characteristic data: Syntax, semantic encoding, and conformance to data specification

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