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Douglas Mann, Secretariat, ISO/IEC JTC 1/SC 32

Pacific Northwest National Laboratory *, 901 D Street, SW., Suite 900, Washington, DC, 20024-2115, United States of America

Telephone: +1 703 575 2114; Facsimile: +1 703 671 9180; E-mail: MannD@battelle.org

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Information technology: ISO/IEC JTC 1/SC 32, Data Management and Interchange

By Stephen Cannan, Convenor, ISO/IEC JTC 1/SC 32/WG 1 and Jim Melton, Editor of ISO/IEC 9075

ISO/IEC JTC 1/SC 32 has responsibility for international standards related to database management and retrieval, communications with database systems, and descriptions of data. While not all of the world's data is stored in databases, an ever-increasing fraction is stored in, retrieved from, and accessed through database management systems (including systems implementing the relational model of data and object-oriented systems). It would not be an exaggeration to say that the success of the World Wide Web is highly dependent on reliable database management accessed through standard query languages and standard protocols. This puts SC 32 directly in the critical path of the new e-economy.

ISO/IEC JTC 1/SC 32 was formed in September 1997 (as a combination of the former JTC 1 subgroups SC 21/WG 3, *Database*; SC 14, *Data elements*, and SC 30, *Open-edt*) with the charter to produce standards for data management within and among local and distributed information systems environments. SC 32 is progressing new work and updates for the major standards that came into the SC, as well as initiating new work. The SC provides enabling technologies to promote harmonization of data management facilities across sector-specific areas. Specifically, SC 32 standards include:

- 4) methods, languages, services, and protocols to structure, organize, and register metadata and other information resources associated with sharing and interoperability, including electronic commerce.

SC 32 has divided itself into five Working Groups and two Rapporteur Groups.

WG 1, *Open-edt* is responsible for standardization in the field of generic information technology standards for open electronic data interchange needed to attain global interoperability among the informa-



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- 1) reference models and frameworks for the coordination of existing and emerging standards;
- 2) definition of data domains, data types, and data structures, and their associated semantics;
- 3) languages, services, and protocols for persistent storage, concurrent access, concurrent update, and interchange of data; and

tion technology systems used by organizations. Such interoperability is viewed from both business and information technology perspectives.

WG 1 recently started work on defining "Business Agreement Semantic Descriptive Techniques" and has initiated New Project requests for the "Identification and Mapping of Various Categories of Jurisdictional Domains".

WG 2, Metadata develops generic IT standards for managing the semantic content of databases, electronic commerce messages, and other information. This includes standards for metadata registries, the specification and standardization of data elements, a Conceptual Schema Modelling Facility (CSMF), and a structure for registration of organization identification schemes. A major effort is underway to revise ISO/IEC 11179, Part 3 to specify a metamodel for the 11179 metadata registry, and to develop object and XML extensions for 11179. New Project requests cover work on content consistency (shareability) for metadata registries, an object interface for the ISO/IEC 11179 metadata registry, and the IT-enablement of Existing Standards for Value Domains (the latter in close collaboration with WG 1). A study period is underway to launch new work on ter-

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minology management for metadata registries. The group is exploring the interworking of metadata registries with terminology structures such as controlled vocabularies, dictionaries, taxonomies, thesauri, and ontologies. An international Open Forum on Metadata Registries is taking place in January 2000 in Santa Fe, New Mexico, USA. The open forum will cover work in progress and describe metadata registries for the environment, health care, aeronautics and space, transportation, electronic commerce, geographic information and socio-demographic statistics. See: <http://www.nist.gov/openforum2000>.

The CSMF standard is evolving to define the semantics of the language as a set of constructs and how they are related, though not the language syntax. WG 2 is also revising

the standard for the representation of Human Sexes (unfortunately without pictures).

WG 3, Database Languages is responsible for the SQL standard (ISO/IEC 9075). The second major revision of this standard, including many object-relational features, was published as a multi-part standard near the end of 1999. This does not mean that the work is complete, however: Two new Parts and an Amendment are already at the CD or FCD stage. One new Part specifies a Java language binding for SQL. The other supports the Management of External Data (SQL/MED), providing SQL-style access to non-SQL data and a standard architecture for access between heterogeneous SQL implementations. This work is supported by protocol work in WG5, specifically with regard to authorization in a distributed environment. The Amendment adds additional OLAP facilities to the SQL language. Although this may be thought to position SQL as an “OLAP-light” tool, the major use of this facility may well be as a tool for use by the serious OLAP package vendors.

WG 4, SQL Multimedia and Application Packages is providing application-specific extensions to SQL using the user-defined data type facilities of ISO/IEC 9075:1999. In parallel with the publication of 9075, WG 4 is publishing the first three parts of a multi-part standard (ISO/IEC 13249), those being the Framework, Full Text, and Spatial. Work on Still Image has reached the FCD stage.

WG 5, Database Access and Interchange is responsible for standards to facilitate interworking of applications and databases that may be located on different sites. These standards relate principally to communications and management data. WG 5 is currently extending ISO/IEC 9579:1999, *Remote Database Access for SQL* to support the full functionality of ISO/IEC 9075:1999 and adding Amendments for Security, especially in the multi-site, distributed database environment, a Distribution Schema for RDA, Support for SQL/MED, and Encompassing Transaction. In addition, work has started on using XML as an encoding for RDA.

WG 5 provides publicly available executables and source for RDA client and RDA server. The client and server are cur-

rently tested with: Windows 95, 98, NT4, 2000 beta2, ODBC 3.51, JDBC, MS SQL-server, IBM DB2, and others.

The two Rapporteur Groups are tasked with completing and maintaining a small number of projects: the Reference Model for Data Management and an export-import facility.

The next meeting of SC 32 and its Work Groups is in January 2000 at Santa Fe, New Mexico, USA. See

<http://www.nist.gov/sc32-santa-fe>.

The web site for JTC 1/SC 32 is at

<http://bwonotes5.wdc.pnl.gov/SC32/JTC1SC32.nsf>

“The SC provides enabling technologies to promote harmonization of data management facilities across sector-specific areas.”

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