Request for a new study period on Query Language for Consistent Exchanging and Sharing Metadata between Metadata Registries

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1. Title
SQL/MDR: Query Language for Consistent Exchanging and Sharing Metadata between Metadata Registries

2. Motivation
Various metadata registries based on ISO/IEC 11179 have been built for such as health care, medical information, and bibliography information fields. However, these metadata registries depend on their specific application domains. The interoperability between metadata registries in different fields is affected by effectiveness of metadata sharing and exchanging. Successful sharing of metadata requires a standardized and consistent access method to exchange the metadata between distributed metadata registries.

ISO/IEC 11179 specifies methods to build and manage metadata registries, but it does not provide a standard access method for handling their own metadata registry or exchanging between distributed metadata registries. Therefore, the conventional metadata registry management systems have been developed to resolve the issues with different access methods. However, the approach using the different and inconsistent access methods causes several problems as follows:

- Different access methods
- Heterogeneity of access methods between metadata registry management systems
- High cost for implementation of APIs
- High processing complexity for integrated metadata retrieval
- Incompatibility of defined metadata

3. Purpose
A standardized access method is required to resolve the aforementioned issues and the goal of this proposal is to develop a query language to achieve it. In other words, a query language, named SQL/MDR is proposed as a method to consistently exchange and share metadata between metadata registries in various kinds of fields. It has a role as a communication protocol between various management systems that manage their metadata registries. SQL/MDR is based on SQL and is similar to many SQL-based query languages. It can be applied for semantic consistency maintenance of applications.

4. Scope
The proposal covers Metadata Retrieval Language (MRL), Metadata Manipulation Language (MML), Metadata Definition Language (MDL), and Metadata Control Language (MCL) for metadata registries. The proposal describes concrete examples to help users’ understanding and encourage its usability. A relational database structure is defined and used to show the examples.

4.1. Metadata Retrieval Language (MRL)
   4.1.1. MRL Operators
   4.1.2. MRL Syntax
   4.1.3. Examples of MRL

4.2. Metadata Manipulation Language (MML)
4.2.1. Metadata Update Statement
   4.2.1.1. Operators
   4.2.1.2. Syntax
   4.2.1.3. Examples
4.2.3. Metadata Insert Statement
   4.2.3.1. Operators
   4.2.3.2. Syntax
   4.2.3.3. Examples
4.2.4. Metadata Delete Statement
   4.2.4.1. Operators
   4.2.4.2. Syntax
   4.2.4.3. Examples

4.3. Metadata Definition Language (MDL)
   4.3.1. MDL Operators
   4.3.2. MDL Syntax
   4.3.3. Examples of MDL

4.4. Metadata Control Language (MCL)
   4.4.1. MCL Operators
   4.4.2. MCL Syntax
   4.4.3. Examples of MCL

5. Contributions of the Proposal
The proposal provides the following contributions:
   • Standardization of access method
   • Simplification of query statement
   • Easy usability
   • Low cost of query modeling
   • Low cost of distributed queries processing
   • Simplification of exchange mechanism between metadata registries
   • Simple integration of distributed metadata registries
   • Building of metadata registries strictly following the standard, ISO/IEC 11179