

Reuse of Content from ISO 15926 and FIBO

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Agenda

- Really quick overviews
 - ISO 15926
 - iRING User Group
 - FIBO
- Network Management Motivation
- Reuse Specifics
- Experiences

ISO 15926

- http://en.wikipedia.org/wiki/ISO_15926
- Designed for data integration and exchange regarding the lifecycle of an “installation” and its components
 - A “babel fish” for project information
- Established for the process industry
 - Large projects with many participants, being built and maintained for long periods of time
- Technology useful outside the process industry if have a vocabulary of reference data

iRING

- Acronym for ISO 15926 Realtime Interoperability Network Grid
- http://iringug.org/wiki/index.php?title=Main_Page
- Four purposes:
 - Prove that information exchange is possible using the full ISO 15926 spec
 - Develop tools and make them available under an open-source license
 - Supporting configuration and execution
 - Develop best practices
 - Encourage vendors to collaborate and support iRING interfaces within their products

FIBO

- Acronym for the Financial Industry Business Ontology
- <http://edmcouncil.org/financialbusiness>
- Effort to standardize the language and define:
 - Terms, conditions, and characteristics of financial instruments
 - Legal and relationship structure of business entities
 - Market data
 - Obligations and process aspects of corporate actions

Motivation for Reuse for Network Mgmt

- Overlapping semantics
 - Key concepts such as physical and planned entities and service level agreements between various parties
- Reuse of iRING tooling
 - Data needs to be defined and exchanged across multiple products and sites in an enterprise
 - Similar to the process industry customer, vendor and supplier environment
- Small budget and tight timeframe
 - Can't/shouldn't create an ontology from the ground up, want to find/reuse basic concepts

Concepts from ISO 15926 (I)

- Possible versus actual individuals
 - In support of network planning
- Property and indirect property
- Activities with beginnings and endings
 - Configuring, monitoring, following, occurring, process, creating, completing, ... (especially for trouble ticketing)
- Role
- Information, note, data sheet, guideline, ...

Concepts from ISO 15926 (II)

- Units of measure (interlaced with the QUDT ontology)
- System and feature
- Physical object, container, compartment, component, connector, ... (especially for inventory and sparing)
- Connection (would have been nice)
 - Problematic since it is defined as transferring “matter, energy or both”, ~physical

To Use iRING Tools, Extend ...

- Class_of_arranged_individual with network_individual concepts
- Standard_class with relevant standards (such as IETF)
- Class_of_activity with both operator, user and equipment/service activities (such as establishing connection)
- Class_of_direct/indirect_property with networking values (such as jitter or bandwidth)
- ...
- Would be defined regardless of the use/reuse of ISO 15926

Concepts from FIBO

- Agreements, commitments, contracts, contractual elements, and objectives
- General concept of autonomous agent, person, organization, role and group
 - But legal specifics are not relevant at this time
- Physical location and address
- Many of the:
 - Object properties (“relations”)
 - Data properties
 - Annotation properties

Object property hierarchy: topObject



- ▼ topObjectProperty
 - causes
 - characterizes
 - classifies
 - comprises
 - confers
 - constrains
 - controls
 - ▶ designates
 - embodies
 - governs
 - ▼ has
 - 'has citizenship'
 - 'has context'
 - 'has designation'
 - 'has identity'
 - 'has party'
 - 'has part'
 - 'has party in role'
 - ▶ 'has representation'
 - 'has role'
 - 'has in force'
 - 'has member'
 - 'has member'
 - 'has member list'
 - 'has top concept'
 - holds
 - identifies
 - involves
 - 'is a part of'

Data property hierarchy: topDataPro



- ▼ topDataProperty
 - 'has acquisition date'
 - ▼ 'has address component'
 - 'has country name'
 - 'has locality'
 - 'has post office box'
 - 'has postal code'
 - 'has state name'
 - 'has street address'
 - 'state abbreviation'
 - 'has date of birth'
 - 'has date of issuance'
 - 'has disposition date'
 - 'has effective date'
 - 'has expiration date'
 - 'has gender'
 - ▼ 'has name'
 - 'has alias'
 - 'has common name'
 - ▶ 'has formal name'
 - ▶ 'has person name'
 - 'was formerly known as'
 - 'has place of birth'
 - 'has unique identifier'
 - notation

Annotation property hierarchy:



- filename
- incompatibleWith
- isDefinedBy
- keyword
- ▼ label
 - ▶ 'alternative label'
 - 'hidden label'
 - 'preferred label'
 - license
 - ▶ modified
 - moduleAbbreviation
 - moduleAbstract
 - moduleName
 - moduleVersion
 - ▼ note
 - 'change note'
 - definition
 - 'editorial note'
 - example
 - 'explanatory note'
 - 'history note'
 - 'scope note'
 - 'usage note'
- priorVersion
- priorVersion

ISO 15926 Experiences

- Valuable concepts, especially when coupled with domain-specific insights
- Too physically oriented
- No single source for a complete explanation
 - [http://iringug.org/wiki/index.php?title=Beginners Guide to ISO 15926 Modeling](http://iringug.org/wiki/index.php?title=Beginners+Guide+to+ISO+15926+Modeling) (text)
 - <http://www.15926.info> (text)
 - <https://www.posccaesar.org/wiki/ISO15926#Resources> (browsable interfaces)
 - <http://www.iso15926.net> (more condensed, targeted browser)
 - <https://www.posccaesar.org/wiki/ISO15926inOWL> (OWL definitions)

ISO 15926 Experiences

- Intimidating ...
 - Too much complexity, mind-boggling tens of thousands of classes
 - Annotations (definitions and examples) separate from class definitions for “Part 2”
 - General concepts in “Part 2”; Specific concepts in “Part 4”; Groupings/templates in “Part 7”
- OWL 1 (DL) definition
 - Programmatic/syntactical, generated from EXPRESS
 - Limited use of OWL semantics/constructs
 - Defined using Class, subclassOf, disjointWith, equivalentClass
 - But independent concepts of relationship and possible_/actual_individual (versus object properties and named individuals)

FIBO Experiences

- Reuse more limited than ISO 15926 due to targeted nature of the specification
 - But more specificity meant that info was more obvious and easier to immediately use or discard
- Still early in development and too generic
 - Depth and details
- Zip file contained all the necessary OWL files except:
 - OMG's SpecificationMetadata (which was obvious but annoying on import to a tool like Protégé)
- Defined in OWL (versus translated)
 - Much easier to understand, import, ...
 - Annotations integrated with the concept definitions

General Comments

- Difficult to find specific semantics in ontologies
- Could not reuse full ontologies
 - Specific concepts/semantics very valuable
- Other (small) general ontologies were imported/used directly
 - For example, W3C's Time and Provenance ontologies
- Targeted semantics very useful as starting points
 - Not open-ended
 - More complete analysis than network mgmt perspective alone could have provided
 - Room to grow as needed

