IOF ARCHITECTURE TASK GROUP

IOF ONTOLOGY DEVELOPMENT LIFECYCLE AND PUBLICATION PROCESS
IOF ARCHITECTURE TG UPDATE

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Architecture Task Group

Purview

- Ensure coherence, cohesion, and interoperability across domain areas

- Provide guidelines / best practices for ensuring minimal quality

Responsibilities

- Publish normative documents for development activities
  - All normative documents planned to be made public

- Provide guidance for publishing automation and viewer

- Manage version control and branch policies

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Normative Documents

- Normative development documents currently include the following:
  - IRI Structure (v2.3 needs review)
  - Annotations (v2.3 needs review)
  - External Ontologies (rules need review)
  - Non-normative content – Rules and Property-chains (needs review)
- Development Process (under construction)
  - Issue flow for TOB and Working Groups
  - Roles and responsibilities
  - Version Control policies and procedures
  - IOF Infrastructure Requirements

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IRI Structure

IRI Structure and Format

- **Topics, sub-topics, meta-data, competency questions (SPARQL), test data (individuals), and rules**

- Separation of normative and non-normative content

- IOF Structure
  - `topic/Ontology`
  - `topic/subtopic/Ontology`

- Example
  - `core/Core`
  - `core/meta/AnnotationVocabulary`
  - `core/temporal/Temporal`
  - `core/temporal/addenda/swrl/TemporalRules`

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Annotations

- Prescriptive Annotations for the following:
  - Ontologies and all constructs (classes and object properties)
  - Labels
  - Definitions
    - Natural Language
    - Semi-formal natural language definition and axioms
    - First-order definition and axioms
    - Maturity
    - References
    - Etc…

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External Ontologies

- Guidelines and policies for selection/usage of external ontologies
- The following strategies for reuse include the following:
  - Direct incorporation without modification (aka - Import)
  - Mapping layer from foreign to IOF ontology
  - IOF assumes ownership by copying constructs from foreign ontology to IOF and assigning an IOF IRI
  - Inclusion of only select parts via MIREOT[1] Methodology
  - Provide a non-normative guide for users to utilize an ontology that provides a necessary capability
- We MUST cache all external ontologies

1 MIREOT (Minimum Information to Reference an External Ontology Term)

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External Ontologies

External ontology cache

- Examples
  - `cache/bfo/2020/bfo.rdf`
  - `cache/CMNS/Identifiers.rdf`
  - …
- Ensures files are always available and versions are correct
- `catalog-v*.xml` files **always loads cached ontologies**
- `AboutIOF*.rdf` **always loads cached ontologies first**
- All ontologies provide `About` file to properly load cached ontologies
- **CI/CD always uses cached ontologies**

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Ontology Development Process

- Structure – how we organize the content

- Actors – responsibilities

- Process – in five acts

- Tools – technology support for ontology development

- **Goal**: *Continuous Improvement*

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