The MMI Registry and Repository

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Marine Metadata Interoperability Project (MMI)

Monterey Bay Aquarium Research Institute (MBARI)

OOR Open Ontology Repository – July 30, 2009

Outline

- Requirements
- MMI ORR
- BioPortal Back-end
- BioPortal Front-end
- MMI Added Modules
- Next steps

Some central repository requirements

- Controlled vocabulary creation
- Registration/storage of vocabularies
- Metadata association
- Versioning
- Semantic query support
- Term mapping/aligning
- Mapping repository
- Vocabulary and term URI resolution

  - **Easy-to-use** tools for creation of vocabularies and mappings
  - **Community driven**, collaborative creation
  - Provide **semantic mediation services** to diverse data portals and tools

http://marinemetadata.org/community/teams/ont/mmirepository/oorreqtsplus

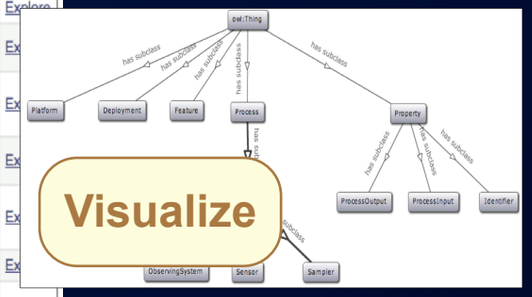
MMI ORR = BioPortal + MMI modules

- BioPortal, back- and front-end
- MMI Modules
  - Voc2RDF: Creation of vocabularies
  - Metadata (OMV + MMI extensions)
  - Versioning (“versioned” and “unversioned” URIs)
  - Ontology and Term URI Resolution
  - VINE: Term mappings editor
  - SPARQL endpoint
  - Experimental front-end

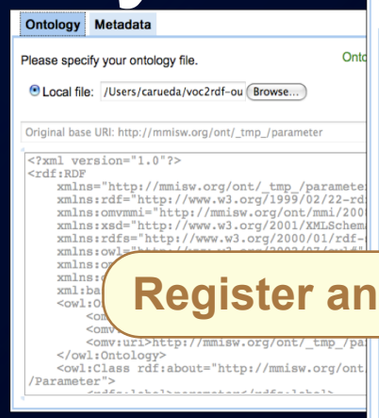
MMI Ontology Registry and Repository

Ontology Name	Format	Version	Author	Uploaded On	
Argo QA/QC Flags	OWL-DL	20081116T040146	Stephanie Watson	11/15/2008	Explore
CDIP Term Vocabulary	OWL-DL	20081120T002506	CDIP	11/19/2008	Explore
CeNCOOS subset and extension of CF-1.3	OWL-DL	20081119T162507	Dale Robinson	11/19/2008	Ex
CeNCOOS water monitoring subset and extension of CF parameter vocabulary	OWL-DL	20081119T231517	Dale Robinson	11/19/2008	Ex
cencoos-seadatanet test mapping	OWL-DL		carlos rueda	11/15/2008	Ex
Climate and Forecast (CF) standard names parameter vocabulary	OWL-DL		uis ermudez	11/15/2008	Ex
Demo in the q2o break out	OWL-DL		q2o	11/19/2008	Ex
Extended Contintental Shelf (ECS) Device Vocabulary	OWL-DL	20081120T002335	Amilan	11/19/2008	Explore
GCOOS Vocabulary	OWL-DL	20081116T063341	Matt Howard and Felimon Gayanilo	11/15/2008	Explore
	OWL-DL	20081117T235159	YIXIN LUO	11/17/2008	Explore

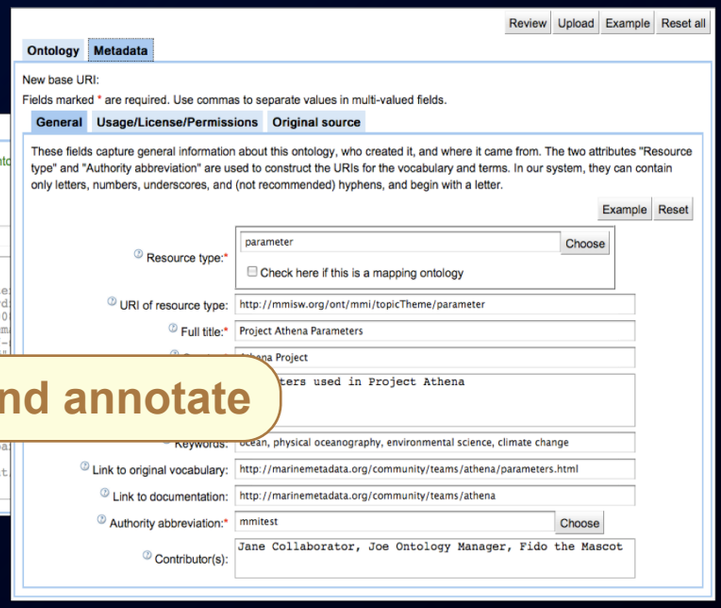
Browse



Visualize

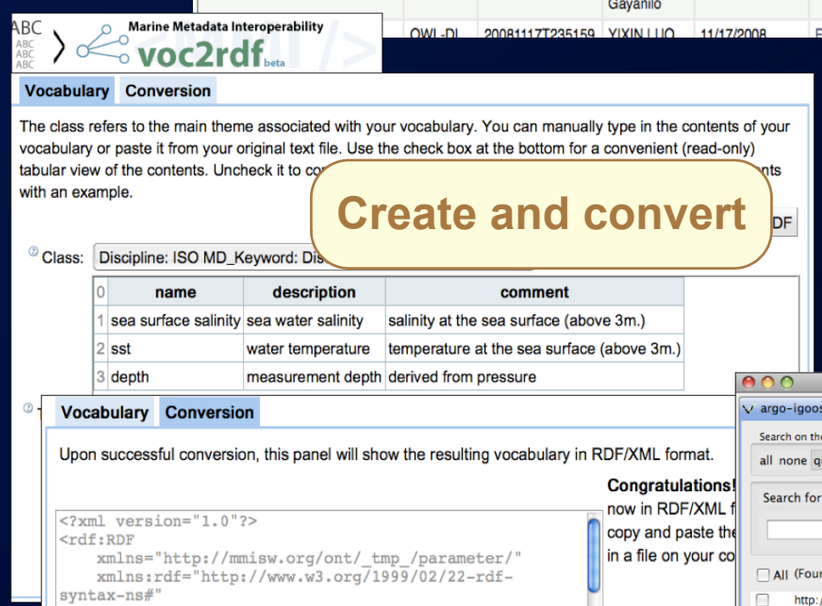


Register and annotate

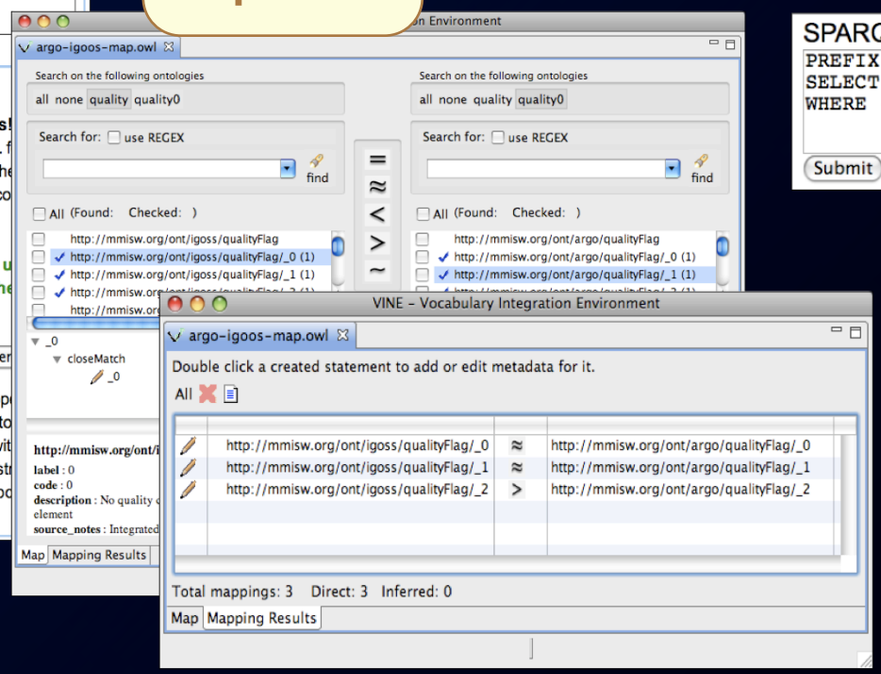


MMI ORR

Create and convert



Map terms



Resolve URIs

http://mmisw.org/ont/mmi/20081203/parameter/sst

Root | Authority | Version | Vocabulary | Term

SPARQL query:

```
PREFIX dc: <http://purl.org/dc/elements/1.1/>
SELECT  ?resource  ?creator
WHERE { ?resource dc:creator ?creator. } LIMIT 12
```

Submit

Search

resource	creator
…/igoss/20081113T203318/qualityFlag	Stephanie Watson
…/gcoos/20081118T044314/sensor	YIXIN LUO
…nt/mmi/20081119T135714/usjgofs_hydro	Cyndy Chandler
http://mmisw.org/ont/q2o/20081117T133042/qualityFlag	Sara Haines
http://mmisw.org/ont/qartod/20081113T212733/qualityFlag	Stephanie Watson
http://mmisw.org/ont/cf/20081116T050933/parameter	Luis Bermudez
http://mmisw.org/ont/ecs/20081120T164852/device_map	Amilan
http://mmisw.org/ont/cencoos/20081116T071031/parameter	Dale Robinson
http://mmisw.org/ont/ndbc/20081114T205115/qualityFlag_hard	Stephanie Watson
http://mmisw.org/ont/seadatanet/20081116T060423/qualityFlag	Stephanie Watson
http://mmisw.org/ont/mmitest/20081117T202337/qualityFlag	Carlos Rueda
http://mmisw.org/ont/cencoos/20081119T231517/parameter	Dale Robinson

MMI ORR Back-end

- No changes in BioPortal back-end
- Most operations via REST calls (eg., ontologies, auth)
- Ontology URI
  - Key to allow access by users and software clients
  - Key to social changes: adoption and understanding
- URI-based operations via direct access to DB
- SPARQL endpoint using Jena

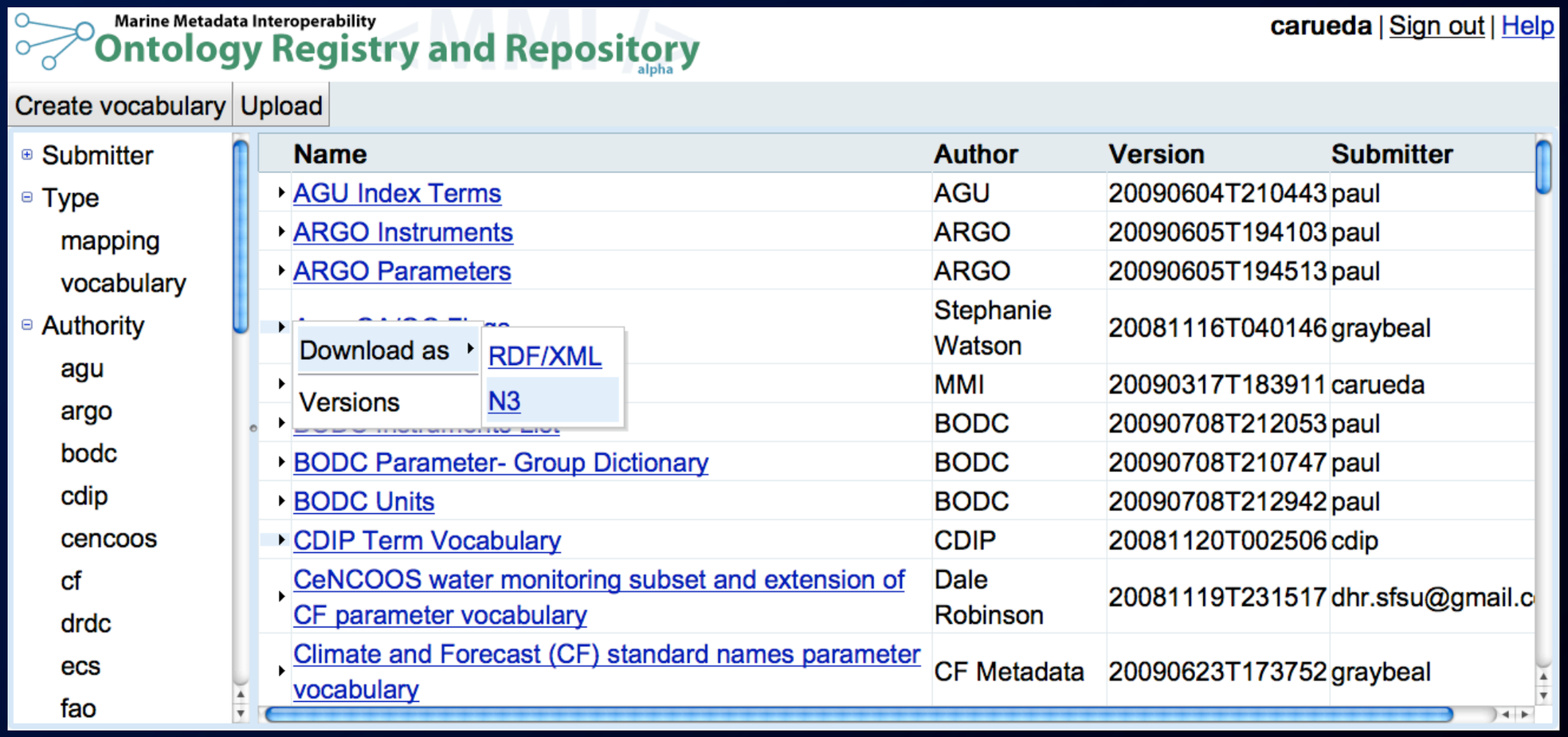
BioPortal Front-end

- Configuration
  - Back-end REST URLs (Rails and FlexViz)
    - Rails
      - config/environment.rb
    - FlexViz
      - public/flex/FlexoViz.html
  - Ports
    - lib/BioPortalRestfulCore.rb (8080, 80)
  - Email addresses
    - app/models/notifier.rb
  - Google Analytics ID
    - app/views/layouts/_footer.html.erb

BioPortal Front-end

- Challenges
  - Internationalization
  - Non-developer deployment / adaption
  - Rails knowledge
  - Flex changes
  - Speed of development

MMI ORR – Added module



- Experimental “admin” front-end
  - Browse by various categories (authority, submitter, etc.)
  - Maintenance tasks (deletion, reassign ownership, etc.)
  - Evaluate REST interface
  - Gain experience for developing other potential front-ends

Next steps – Back-end

- Upgrade to latest release of BioPortal/OOR
  - Evaluate REST services
  - Promote URIs as first-class citizens
- Ontology Metadata (OMV, BMO, MMI)
- Enhanced support for mappings using SKOS
- Re-hosting ontologies
- Groups, permissions
- Versioning

Next steps – Front-end

- Centralized config
- Development models
- Theming
- Plug-ins
- Visualization (inc. individuals)

Next steps – In general

- Integration and closer alignment
  - Collaborative Vocabulary and Mapping Development
  - OOR, BioPortal, Protégé, CODS, NeOn
  - End-to-end semantic solutions for Earth science communities

- Broader vision
  - Inter-repository APIs
  - Standard metadata ontologies

Thank you!

- MMI ORR: http://mmisw.org/or
- Project: http://code.google.com/p/mmisw
- Marine Metadata Interoperability: http://marinemetadata.org

- Ontology Requirements:
  http://marinemetadata.org/community/teams/ont/mmirepository/oorreqtsplus

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