

Explicator Project: Progress Update

Terrier Workshop: 26th February 2008

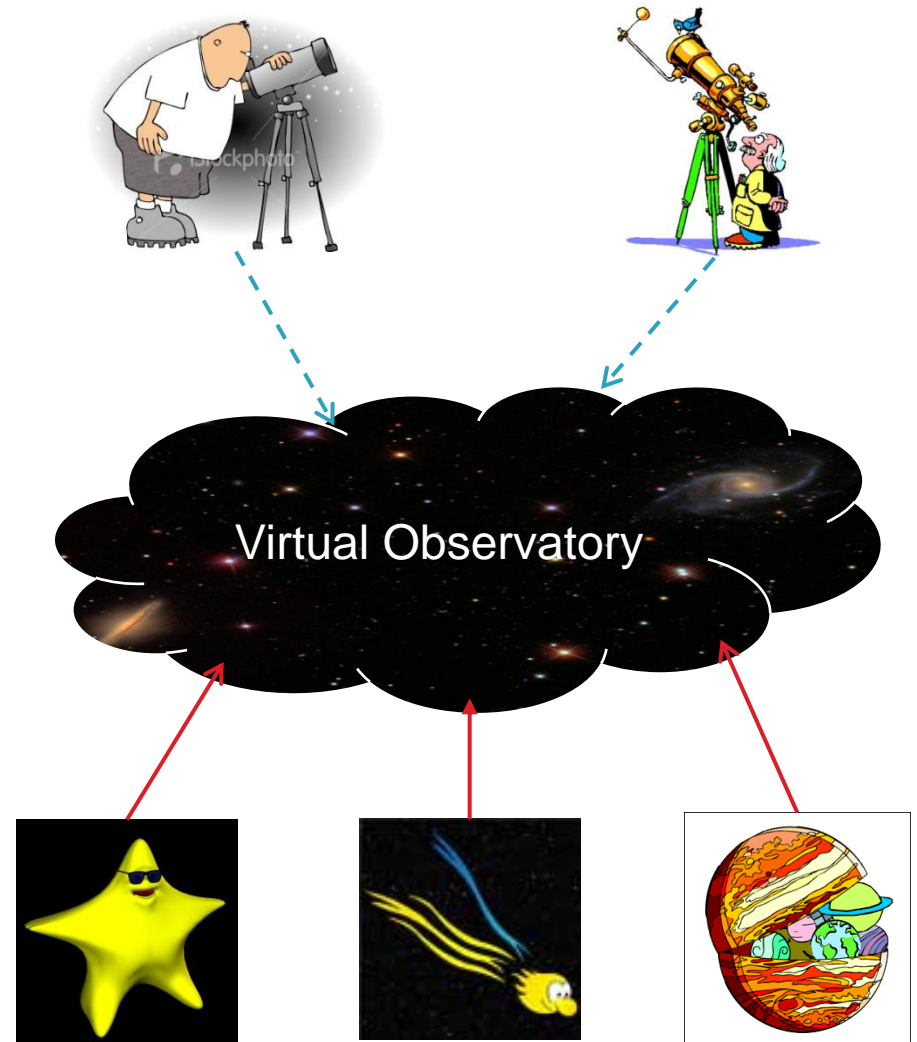
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Overview

- ▶ Project reminder
- ▶ Where are we now
 - Data model integration
 - Exploring vocabularies

Problem

- ▶ Astronomers need to locate relevant data
- ▶ Data published
 - By multiple sources
 - Using different
 - Vocabularies
 - Data Models
- ▶ Applications use own vocabularies and data model



Project Aim

Develop a lightweight semantic integration system

- ▶ Sources publish using own data model
 - Data model published as an ontology
 - Data tagged using one or more vocabularies
- ▶ Users express data need in familiar data model
 - Data model available as an ontology
 - Query over the ontology
 - Data discovery through vocabulary term exploration
- ▶ Links data models/vocabularies mappings

Progress to Date

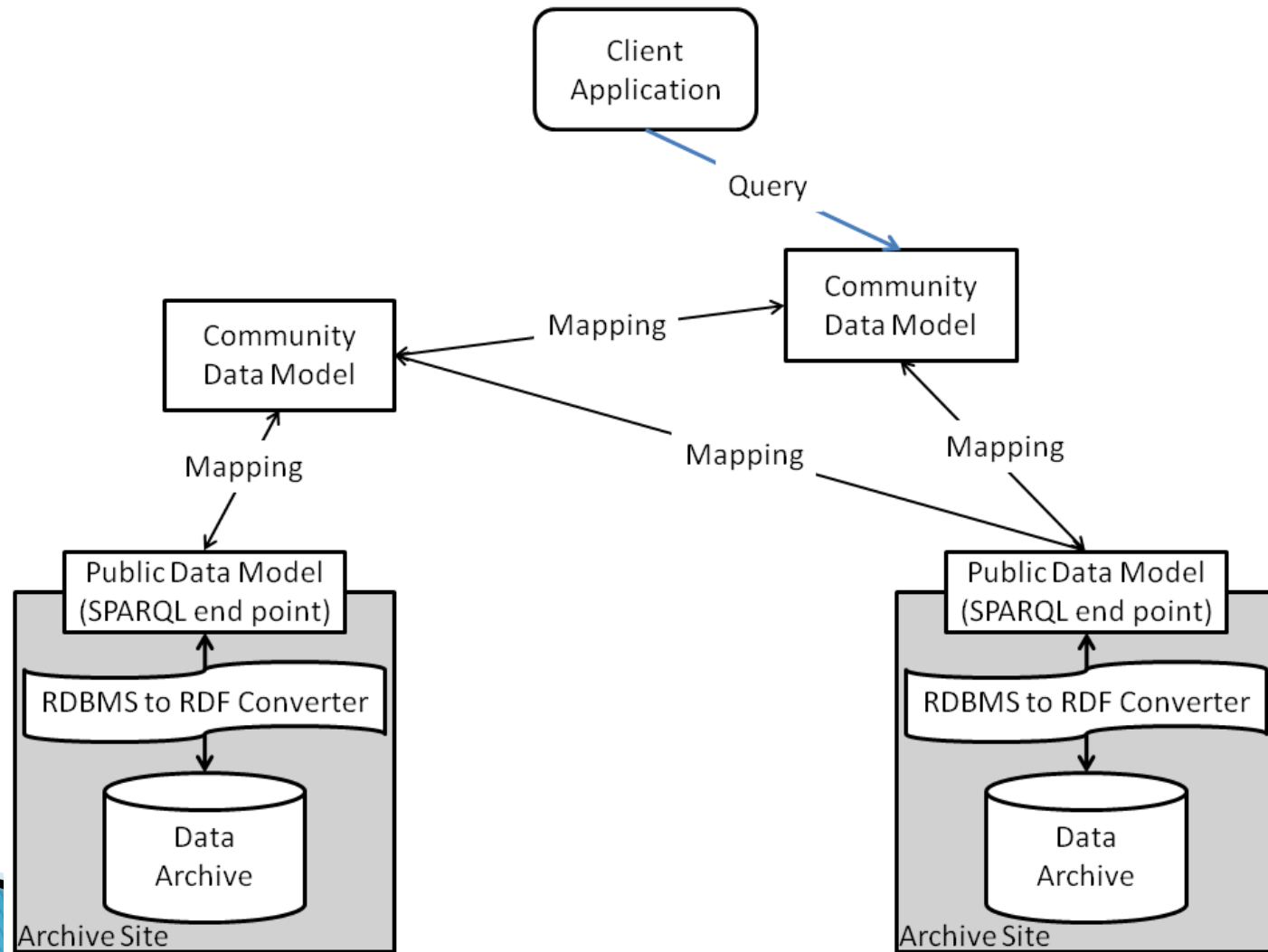
▶ Data Models

- Identified key areas of work
- Brought on board collaborators at
 - European Space Astronomy Centre
 - Royal Observatory, Edinburgh

▶ Vocabularies

- Published astronomy vocabulary standard [International Virtual Observatory Alliance Working Draft](#) (to appear)
- Developing two support applications
 - Vocabulary mapping editor
 - Vocabulary term explorer

Data Models



IVOA Vocabularies WD

- ▶ Defines vocabulary publishing standards
 - Exploits SKOS
 - Publishes example vocabularies in SKOS, including
 - Astronomy and astrophysics keywords (A&A)
 - Astronomy outreach imagery metadata taxonomy (AOIM)
 - International astronomical union thesaurus (IAUT)
 - Universal content description (UCD)
- ▶ Defines standards for linking vocabularies
 - Example mapping document
 - A&A keywords to AOIM

Mapping Editor

The screenshot shows the SKOS Mapping Editor interface. The top-left pane displays a tree view of the left vocabulary, with 'StarEvolutionaryStageSupernova' selected. The top-right pane displays a tree view of the right vocabulary, with 'supernova' selected. A central pane shows the mapping details for an 'Exact Match' between the two terms. The bottom pane shows a table of the mapping and control buttons.

Star: Evolutionary Stage: Supernova

Alternative Labels

- 3.1.8 Supernova

Broader Terms

- Star

supernova

Definition

supernova

Alternative Labels

- SN

Broader Terms

- high-luminosity star
- star

Narrower Terms

- Type Ia supernova

Selected	Left Vocabulary Term	Match Type	Right Vocabulary Term
<input type="checkbox"/>	StarEvolutionaryStageSupernova	exactMatch	supernova

Buttons: Save All, Save Selected, Delete Selected, Delete All

- ▶ Tool to generate mappings
 - Displays term details
 - Displays mappings
- ▶ Java swing interface
- ▶ [Java Web Start](#)
- ▶ Only basic functionality

Vocabulary Explorer

http://localhost:8888/org.ivoa.vocabularies.WebVocabularyExplorer/WebVocabularyExplorer.html

Vocabulary Explorer

Enter a search term.

- Binaries: **general**
- BL Lacertae objects: **general**
- Comets: **general**
- Cosmology: Phenomenon: **Gamma Ray Burst**
- Galaxies
- Galaxies: abundances
- Galaxies: active
- Galaxies: bulges
- Galaxies: clusters: **general**
- Galaxies: distances and redshifts

- ▶ Early stage of development
- ▶ Google Web Toolkit
 - Javascript client
 - Java servlet backend
- ▶ Suggestions welcomed

http://localhost:8888/org.ivoa.vocabularies.WebVocabularyExplorer/WebVocabularyExplorer.html

Vocabulary Explorer

Enter a search term.

Cosmology: Phenomenon: Gamma Ray Burst

Alternative Labels

6.2.2 Gamma Ray Burst

Broader Terms

- <http://www.astro.gla.ac.uk/users/norman/ivoa/vocabularies/vocabularies-0.90/AOIM#Cosmology>

Vocabulary Format

<>

```
a skos:ConceptScheme;  
skos:hasTopConcept <#c1>, <#c8>, <#c12> .
```

...

<#c2>

```
a skos:Concept;  
skos:prefLabel "term name"@en,  
skos:altLabel "alt name"@en, "dif name"@en;  
skos:definition "A short description"@en;  
skos:scopeNote "A clarification of the definition"@en;  
skos:broader <#c1>, <#c9>;  
skos:narrower <#c3>, <#c4>, <#c5>;  
skos:related <#c10> .
```

...