



Workflows Preservation

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IAA-CSIC

January 18th 2012

7th Workflow Working Group Meeting - AS OV France

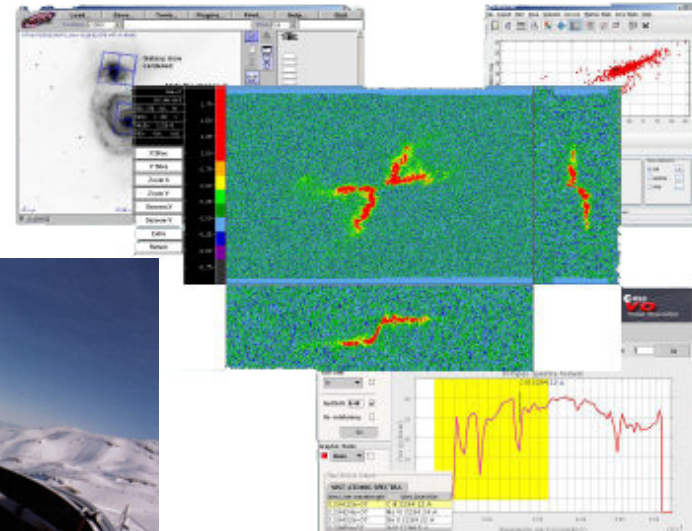
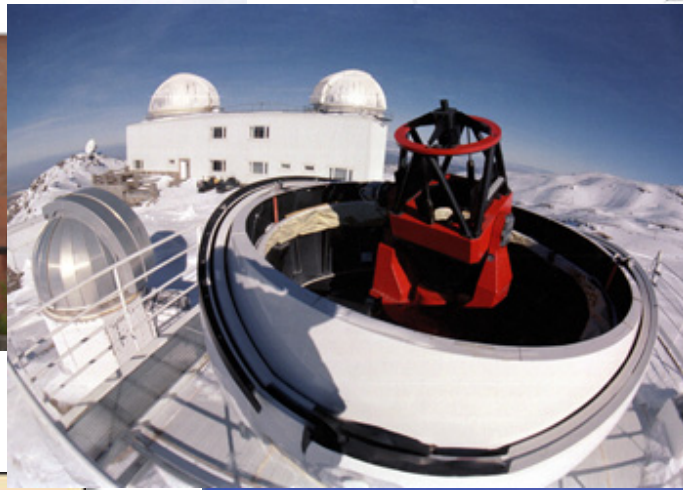


Information Society
Technologies



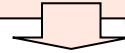
Who am I?

Instituto Astrofísica de Andalucía - CSIC



Analysis of the interstellar Medium of Isolated Galaxies

Statistical baseline of isolated galaxies to compare with the behaviour of galaxies in denser environments



Multi λ study of ~ 1000 galaxies
+

Need of intensive and complex analysis of 3D data
2D spatial + 1 velocity

IAA-CSIC
Univ. Granada, Obs. Marseille, Obs. Paris, NAOJ,
FCRAO, UNAM, Univ. Edinburgh, IRAM, ESO,
Kapteyn Astronomical Institute.

P.I. Lourdes Verdes-Montenegro
<http://amiga.iaa.es>

EU funded FP7 STREP Project December 2010 – December 2013



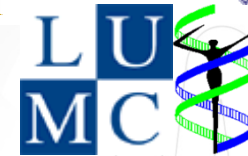
1. Intelligent Software Components (ISOCO, Spain)
2. University of Manchester (UNIMAN, UK)
3. Universidad Politécnica de Madrid (UPM, Spain)
4. Poznan Supercomputing and Networking Centre (PSNC, Poland)
5. University of Oxford (OXF, UK)
6. Instituto de Astrofísica de Andalucía (IAA, Spain)
7. Leiden University Medical Centre (LUMC, NL)



The University
of Manchester



UPM



Technological infrastructure for the preservation and efficient retrieval and reuse of scientific workflows in a range of disciplines

Partners

- One SME
- Six public organizations

Technological Core Competencies

- Digital Libraries
- Workflow Management
- Semantic Web
- Integrity & Authenticity
- Provenance
- Information Quality

Case Studies

- Astronomy (IAA)
- Genome-wide Analysis and Biobanking (LUMC)

Goals

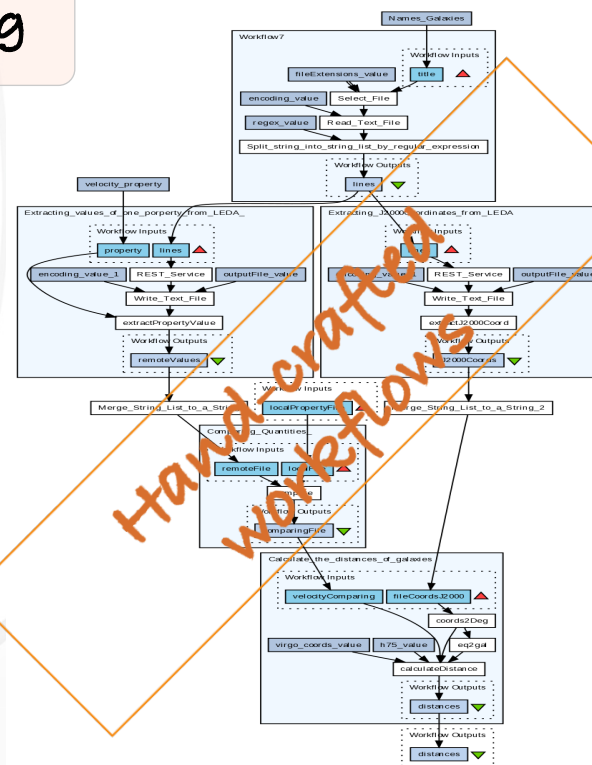
Archival, classification, and indexing of scientific workflows and their associated materials in scalable semantic repositories, providing advanced access and recommendation capabilities

Creation of scientific communities to collaboratively share, reuse and evolve workflows and their parts, stimulating the development of new scientific knowledge

Combination of **data** and **processes** into a configurable and structured set of steps that implement semi-automated computational solutions in problem solving

Types of workflows in Astronomy

- Personal script-based recipes
Python, IDL, Software..
- Multi-archive **VO** recipes
- Internal group developments
GRID, Clusters..
- Processing pipelines
Provide Data, Computing Infrastructure, Tools..



Scientifically exploitable results vs. **scientific insight**
Easily **accessible** and **reproducible** (Shared)

Wfs on
steroids!

Astronomy research is entirely digital
Time has come to go "Beyond the PDF"

Preserved experiments

- Methodology "in action"
- All data are exposed
- Reproducible
- Repeatable *Trust assessment*
- Re-usable
- Re-purposeable
- Participatory
- Collaborative
- Formative *Social aspect*

Discoverable !

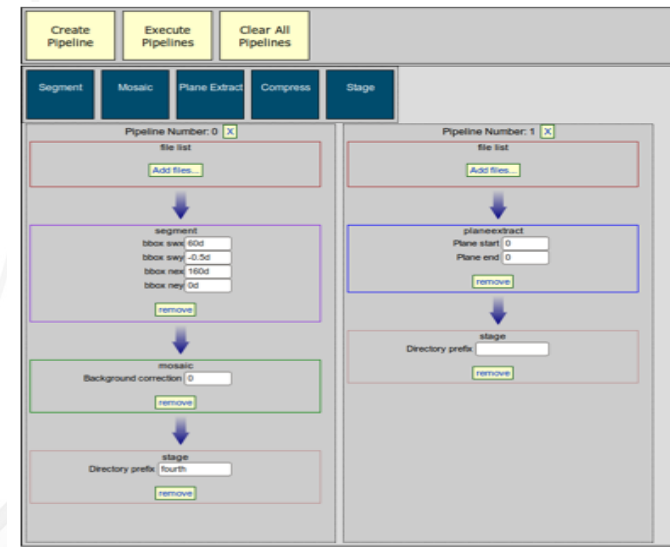


Cyber-SKA

Provide infrastructure that will be required to address the needs of future radio telescopes such as the Square Kilometre Array

web based workflow builder

- Image segmentation
- Image mosaicking (Montage)
- Spatial reprojection
- Plane extraction from data cubes



IceCore

University of Helsinki

Web portal for executing workflows - University of Helsinki

Common interface for wfs distributed in different engine servers

Montage

- FITS Image Mosaicking
- Toolkit for Desktops, Clusters and Grids

Astro-WISE

- Distributed data storage and computing infrastructure
- Track process provenance of final data products
- Calibration and analysis of images

Helio-VO

- Solar physics virtual Observatory
- Enable workflow execution via Taverna Server

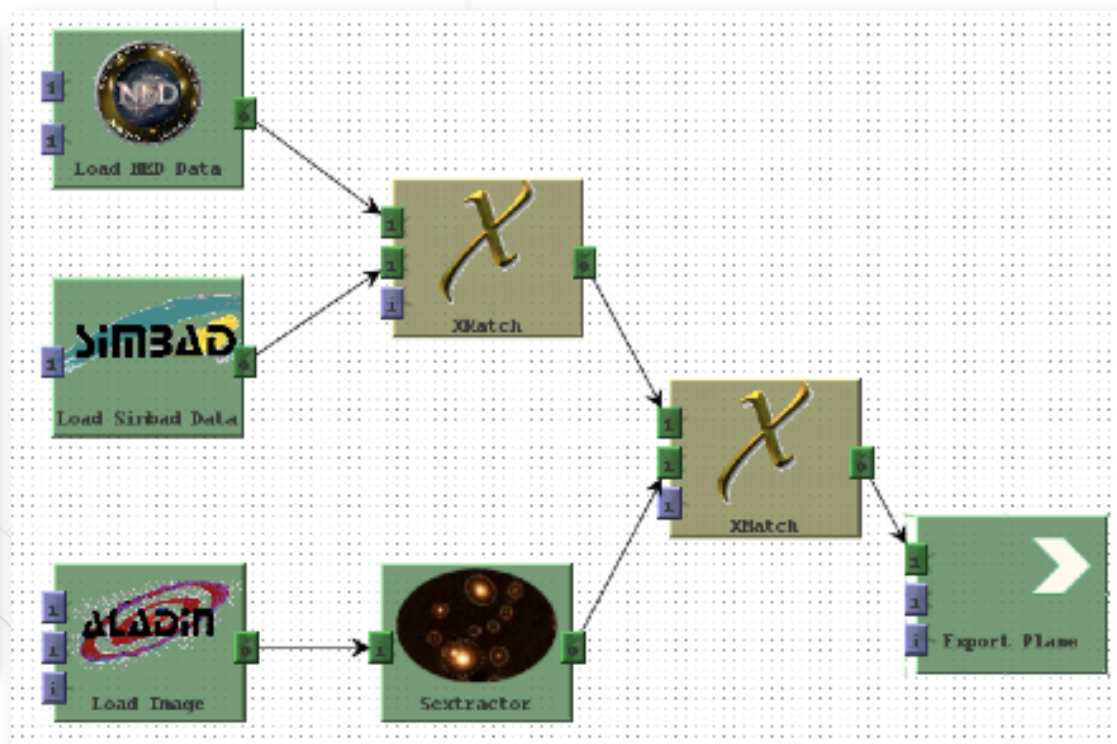
Workflows VO France

- Provide use cases mainly oriented VO
- AIDA Workflow System implements FITS validation with CharDM

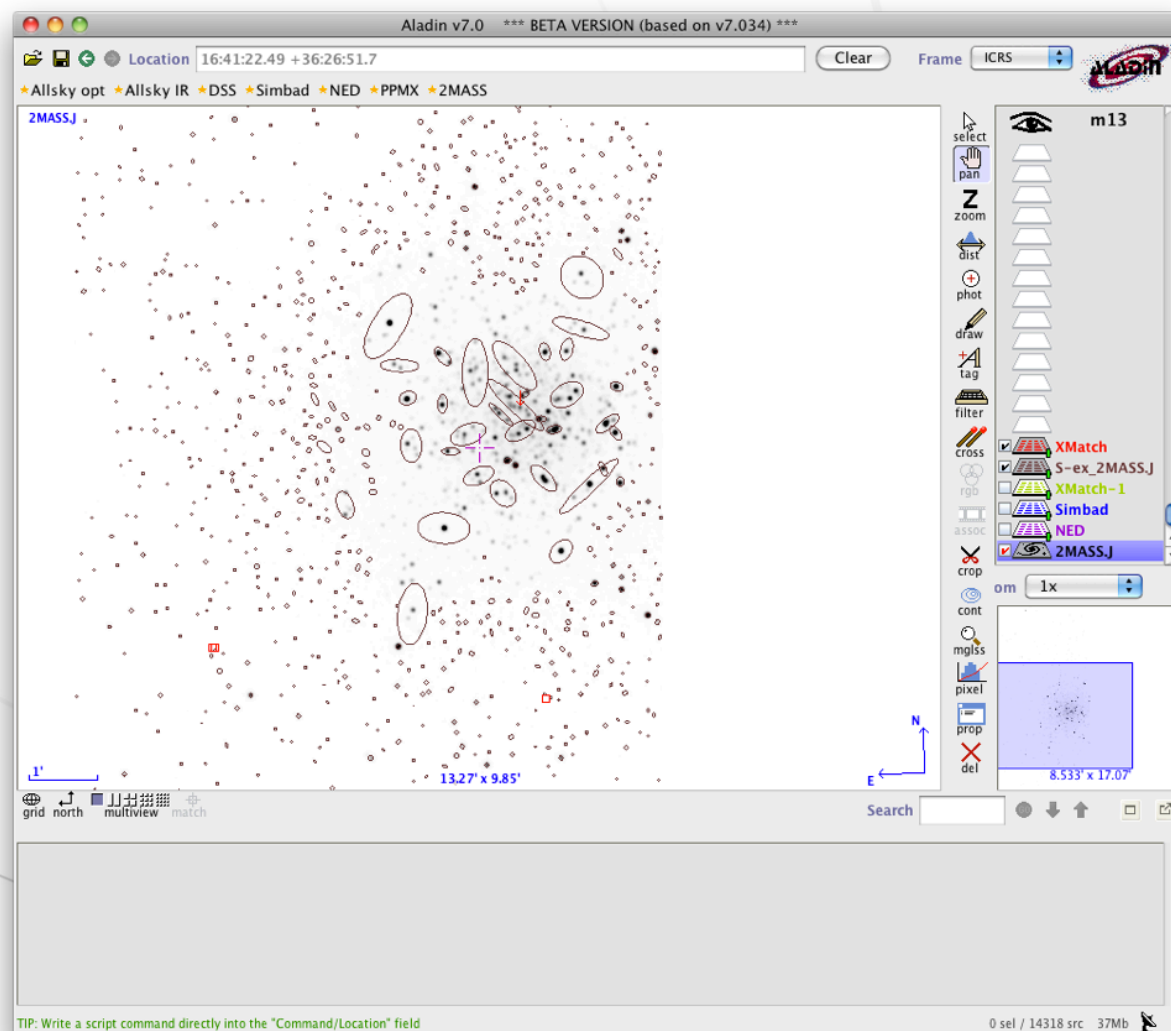
Aladín JLOW Plugin

Aladín plugin API permits graphical replacement of Aladín tools

```
#AJS
get NED m13 14'
get Simbad m13 14'
sync
xmatch NED Simbad 4
sync
get Aladin(2MASS,J) m13
sync
get SExtractor(2MASS.J)
sync
xmatch "XMatch*1" "SExtractor*"
sync
export -votable "XMatch*2"
```



Aladin JLOW Plugin

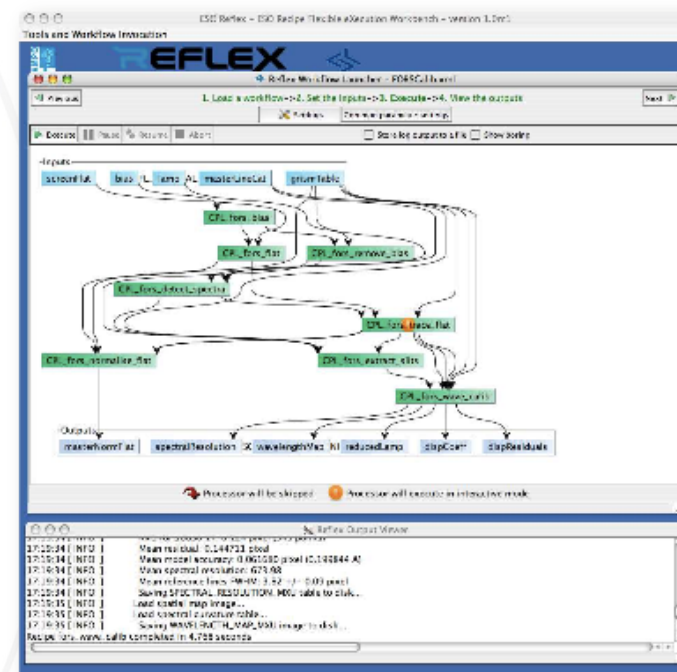


ESO Reflex

Finland's in-kind contribution to ESO

- Prototype/feasibility study
- Initially based on Taverna 1

Current implementation based on Kepler



AstroTaverna

AstroGrid Development

Prototype, marrying of VO Desktop & Taverna 1

Library of Taverna functions to access VO Desktop's API

Status

Wrapper libraries only for Taverna 1

The recipes store Oxford e-Research Centre

- Find workflows
- Share workflows and files
- Find people
- Build communities
- Publish packages
- Tag workflows
- Score and rate workflows
- Comment on workflows
- Write reviews



The screenshot shows the 'myexperiment' website interface. At the top, there are navigation links for 'Home', 'Users', 'Groups', 'Workflows', 'Files', and 'Packs'. A search bar is present with a dropdown menu set to 'All'. Below the navigation, the 'Workflows' section is displayed. It includes a search filter area with pagination (1, 2, 3, ..., 131, next) and a 'Sort by: Rank' dropdown. A list of filters is provided on the left, categorized by type, tag, user, and licence. The main content area shows two workflow entries:

- Workflow 1:** 'Mapping OligoNucleotides to an assembly (v7)'. It was created on 13/02/09 and last updated on 09/08/20. Credits go to Wassinki and Pieter Neerinx. It includes a description of the workflow's purpose and a version info box explaining a change in transcript reporting. It has a rating of 0.0/5, 7 versions, 0 reviews, 0 comments, 0 citations, 419 views, and 66 downloads. Tags include biomart, BLAST, blat, ensemble, microarray, and rshall.
- Workflow 2:** 'Add Mesh String to Biological Process (v2)'. It was created on 03/10/07 and last updated on 03/12/09. It includes a description of the workflow's purpose and a version info box explaining the addition of MeSH terms to KEGG pathway names. It has 0 views and 2 downloads.

On the right side of the page, there is a 'New/Upload' section with a 'Workflow' dropdown and a 'GO' button. Below that is a 'Log in / Register' section with fields for 'Username or Email' and 'Password', a 'Remember me' checkbox, and a 'Log in' button. There is also a 'Need an account? Click here to register' link and a 'Forgot Password?' link. At the bottom right, there is a 'Popular Tags' section with 25 tags, including 'benchmarks', 'bio2rdf', 'bioinformatics', 'BLAST', 'cheminformatics', 'data integration', 'ebi', 'example', 'gene', 'graph', 'kegg', 'Kegg Pathways', 'localworker', 'microarray', 'mygrid', 'ondex', 'pathway', 'pathways', 'phenotype', 'protein', 'pubmed', 'sequence', 'taverna', and 'text mining' | workflow.



The screenshot shows the MyExperiment website interface. At the top, there's a navigation bar with 'Home', 'Users', 'Groups', 'Workflows', 'Files', and 'Packs'. A search bar contains the word 'astronomy'. Below the search bar, there's a message: 'Didn't find what you need? Click here to search external workflow repositories.' The main content area is titled 'Search Results' and shows '6 Workflows found for "astronomy"'. A note states: 'Note: some items may not be visible to you, due to viewing permissions.' The search results are listed as follows:

- Astronomic Observation conditionals example (v1)**
 - Created: 13/10/09 @ 13:23:08 | Last updated: 13/10/09 @ 13:27:48
 - Credits: Trident
 - License: Creative Commons Attribution-Share Alike 3.0 Unported License
 - Description: This workflow contains conditional processing. Trident does not have a good visualization for these yet, but it is good to see how conditionals work.
 - Rating: 0.0 / 5 (0 ratings) | Versions: 1 | Reviews: 0 | Comments: 0 | Citations: 0
 - Viewed: 87 times | Downloaded: 41 times
 - This Workflow has no tags!
- AMIGA ConeSearch (v3)**
 - Created: 11/07/11 @ 22:08:06 | Last updated: 11/07/11 @ 23:34:14
 - License: Creative Commons Attribution-Non Derivative Works 3.0 Unported License
 - Description: This workflow provides a VOTable response from the AMIGA ConeSearch service and extract values from VOTable columns.
 - Rating: 0.0 / 5 (0 ratings) | Versions: 3 | Reviews: 0 | Comments: 0 | Citations: 0
 - Viewed: 0 times | Downloaded: 0 times
 - Tags (3): astronomy | virtual observatory | votable
- MultiQuery XMM Catalog (v1)**
 - Created: 12/07/11 @ 17:27:05
 - License: Creative Commons Attribution-Non Derivative Works 3.0 Unported License
 - Description: This workflow takes as input a VOTable with coordinates of sources and processes a multiquery of the XMM Catalog through the ConeSearch VOTable Services
 - Rating: 0.0 / 5 (0 ratings) | Versions: 1 | Reviews: 0 | Comments: 0 | Citations: 0
 - Viewed: 1 time | Downloaded: 0 times
 - Tags (3): astronomy | virtual observatory | votable
- AMIGA ConeSearch from a file of targets/positions (v1)**
 - Created: 12/07/11 @ 17:34:33 | Last updated: 12/07/11 @ 17:35:35
 - License: Creative Commons Attribution-Non Derivative Works 3.0 Unported License
 - Description: This workflow takes an ASCII file of position of targets, provides a VOTable response from the AMIGA ConeSearch service and extract values from VOTable columns.
 - Rating: 0.0 / 5 (0 ratings) | Versions: 1 | Reviews: 0 | Comments: 0 | Citations: 0
 - Viewed: 1 time | Downloaded: 0 times
 - Tags (3): astronomy | virtual observatory | votable

On the right side of the page, there's a sidebar with a 'New/Upload' section, a 'Log in / Register' section with fields for 'Username or Email' and 'Password', and a 'Popular Tags' section listing 25 tags such as 'benchmarks', 'bioinformatics', 'blast', 'example', 'gene', 'graph', 'impact', 'kegg', 'kegg Pathways', 'localworker', 'mygrid', 'ondax', 'pathway', 'pathways', 'phenotype', 'protein', 'pubmed', 'sequence', 'taxonomy', and 'text mining'.

Astronomy in MyExperiment

- 10 interested users
- No VO-services-based wfs
- Some Helio Project wfs
 - VOTables parsing
 - Internal services
 - Astro-Shims
- BioCatalogue vs. VORegistry

Astro-Wf4Ever specific wfs

- Catalogue Queries

Processes should benefit of the same privileges acquired by Data

Digital Libraries of Workflows may boost the use of the existing infrastructure of data (VO)

Users need templates !

Wf4Ever is also a project about

- How to publish
- How to do review by peers
- Improve visibility by reference and attribution

Publishers should play an import role

The next generation of archives

Much wider FOV and spectral coverage

- Huge sized datasets (~ tens TB)
- Big Data science highly dependent on I/O data rates
- Subproducts as **virtual data** generated on-the-fly

Automated surveys

- Huge amount of tabular data
- Services for **Knowledge Discovery in Databases**

We are moving into a world where

- computing and storage are cheap
- data movement is death

Archives should evolve from data providers into **virtual data** and **services providers**, where web services may help to solve bandwidth issues.

Archives speaking self-descriptive web services

- Smaller virtual data subproducts
- Distributed, multi-archive, multi-wavelength astronomy

~~(Data)~~ Workflow preservation

- Interpreted through their execution
 - Complex models are required to **describe** them
- Severely vulnerable to **obsolescence**
 - Applications
 - Libraries
 - Operating environment
- **Provenance** is a complex issue in a cloud of services
- Resources are often beyond control of scientists
- Alleviate **decay** of external resources via alternates

~~(Data)~~ Workflow preservation

- **Versioning** of the whole or its components
- Restricted **access** on data and processes
- Permissions, licenses, platform, costs, etc.
- **Semantic** discovery of wfs, processes, web services
- Metrics for **quality**: use stats, logs uptime, etc.
- **Integrity** evaluation
- **Completeness** checking
- Ensure **trustworthiness** and **authenticity**
- Workflows for workflow curation

Preserve, Retrieve, Reconstruct, Replay

- Retrieve
 - Functionality of the wf or its modules
 - What are the inputs and outputs
 - Metadata, authority, keywords
- Reconstruct
 - Understand **dependencies** and **components**
 - Technical specificities
- Replay
 - Check the success of the preservation method
- Referenced and acknowledged

Characterization

Semantics and
Modeling

Execution Tools

Long-term IDs

RO. The Research Object

All components related to the research lifecycle of an experiment should be available.

Preserved and easily retrievable

- Proposals
- Data
- Processes
- Publications

LINKED



Development and Implementation of **Golden Exemplars**

- Local catalogue curation based on VO Archives
- Sources extraction and crossmatching from 2D images
- Modeling and analysis of 3D velocity cubes of galaxies

Create a **community of users**

- Development of Prototypes and Tools
- Dissemination

Integrate existing astronomy **software** with Wf4Ever Tools

- SAMP and WebSAMP

Provide interoperable models, ontologies and **vocabularies** for the characterization of workflows, processes and RO components

- **Characterization** of the Astronomy domain in Wf
- Detailed study of **standards** and web services in IVOA
- Exploration of **similar initiatives** for the curation of digital objects
- **Sociological study** and working methodology of astronomers
- Extraction of user and technical **requirements**
- Extraction of **Taverna** user requirements for Astronomy
- Implementation of first **Golden Exemplar**
- Early contacts in IVOA for the creation of a **community** of users

Announcement about Workflow future plans IVOA Wf4Ever

★ **André Schaaff** para interop

[mostrar detalles](#) 1 jul (hace 12 días)

Responder a todos

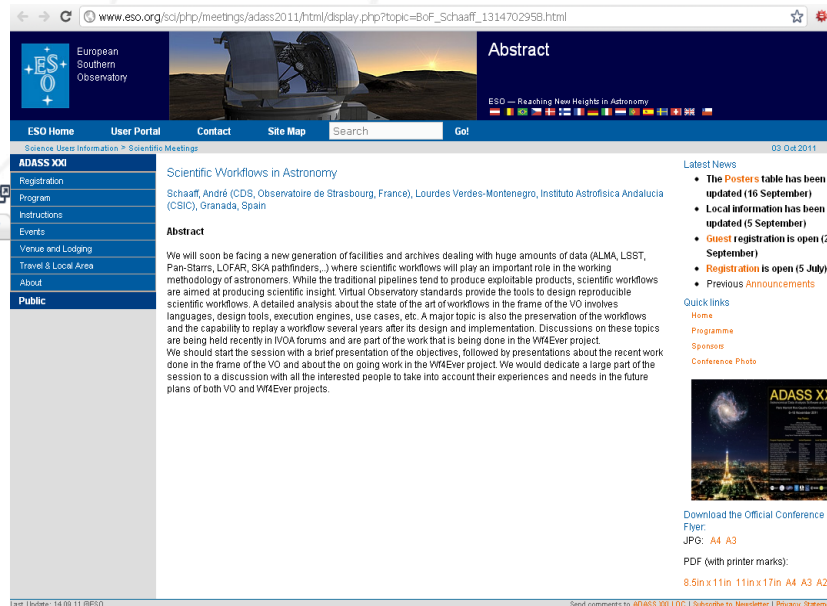
Dear all,

As you know we will soon be facing a new generation of facilities and archives dealing with huge amounts of data (ALMA, LSST, panSTARRS, LOFAR, SKA pathfinders,...) where scientific Workflows will play an important role in the working methodology of astronomers. A detailed analysis about the state of the art of workflows in the frame of the VO involves languages, design tools, execution engines, use cases, etc. A major topic is also the preservation of the workflows and the capability to replay a workflow several years after its design and implementation. Several talks concerning these issues have been presented during the past IVOA Interop meetings (see references below).

In order to undertake this task within our community we think that as a first step a Note should be written. Participation is welcome, in particular, we would like to collect experiences (including use cases, tools, etc.), references, remarks, etc. We plan the Note to be published around September and discussed at the Pune Interop meeting. We should then decide on starting a working draft describing those aspects and possibly in a new Interest Group on Workflows.

Best regards,

André Schaaff and Jose Enrique Ruiz



The screenshot shows the ESO website interface. The main content area is titled "Abstract" and "Scientific Workflows in Astronomy". The text describes the challenges of handling large data volumes and the role of scientific workflows. It mentions the involvement of various observatories and the need for standardized, reproducible workflows. The page also includes a "Latest News" section with updates on poster tables and registration for the ADASS XXI conference.

Users' Requirements

- Functional requirements for Wf4Ever “**working**” platform
- Focused on improving collaboration and reuse
- Interoperability in exchanging scientific methodology
- Expose experiment in a structured way to be understood by others

RO Modeling

- Model for interlinked components in a **Research Object**
- Strategies for assessing **integrity and authenticity**
- Attempts in metrics for **Information Quality**

We need to build what we would like to preserve

Taverna Workbench 2.3.0

Design Results myExperiment Service Catalogue

Service panel

Filter:

Import new services

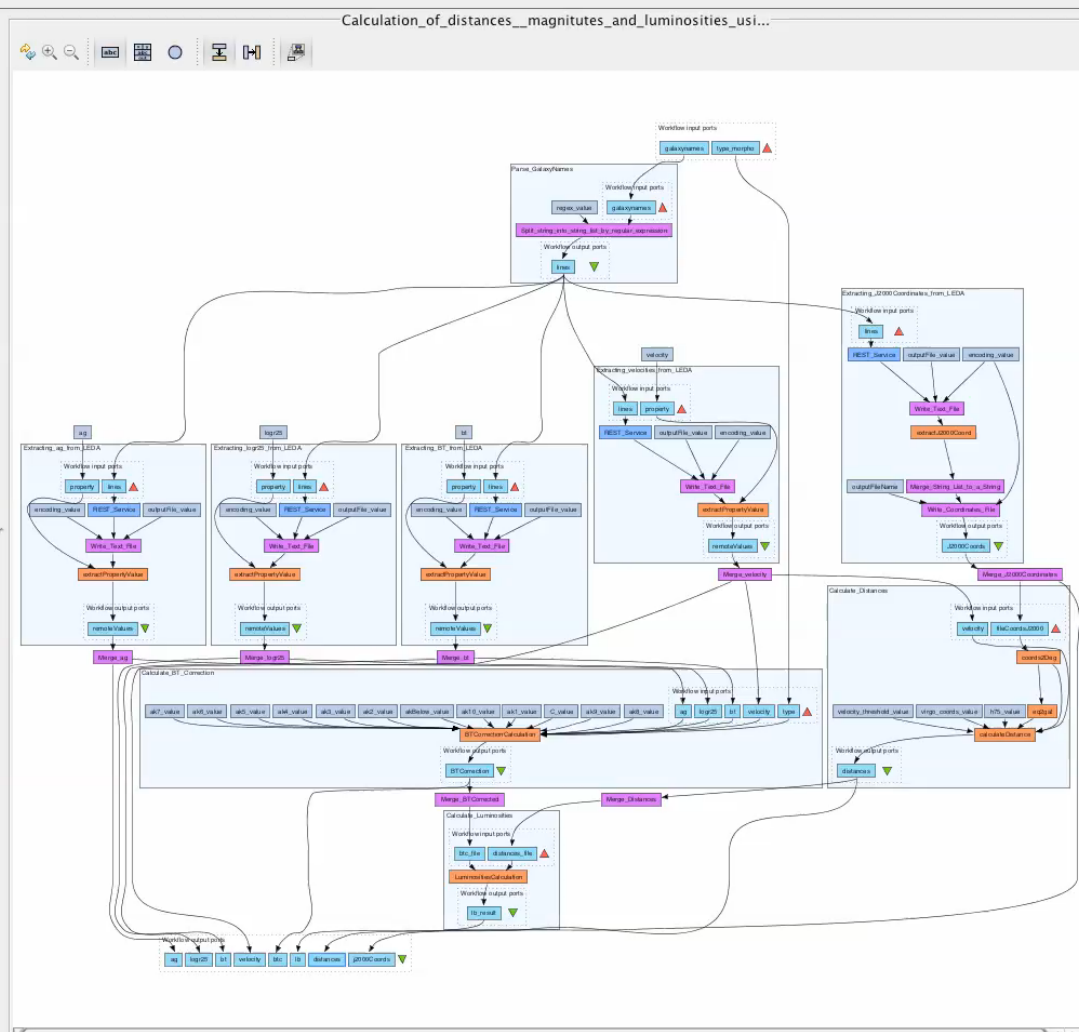
Available services

- Service templates
- Local services
- Biomart @ <http://www.biomart.org/biomart/martservice>
- Biomoby @ <http://moby.ucalgary.ca/moby/MOBY-Central.pl>
- Soaplab @ <http://www.ebi.ac.uk/soaplab/services/>
- Tools described @ <http://taverna.nordugrid.org/sharedRepository/xml.php>
- WSDL @ <http://soap.bind.ca/wsdli/bind.wsdli>
- WSDL @ <http://soap.genome.jp/KEGG.wsdli>
- WSDL @ <http://www.ebi.ac.uk/ws/services/urn:Dbfetch?wsdl>
- WSDL @ <http://www.ebi.ac.uk/xembi/XEMBL.wsdli>

Workflow explorer Details Validation report

- distances
- j2000Coords
- lb
- logr25
- velocity
- Services
 - ag - ag
 - value
 - bt - bt
 - value
 - Calculate_BT_Correction
 - ag
 - bt
 - logr25
 - type
 - velocity
 - BTCorrection
 - Calculate_Distances
 - fileCoordsj2000
 - velocity
 - distances
 - Calculate_Luminosities
 - btc_file
 - distances_file
 - lb_result
 - Extracting_ag_from_LEDAs
 - lines
 - property
 - remoteValues
 - Extracting_BT_from_LEDAs
 - lines
 - property

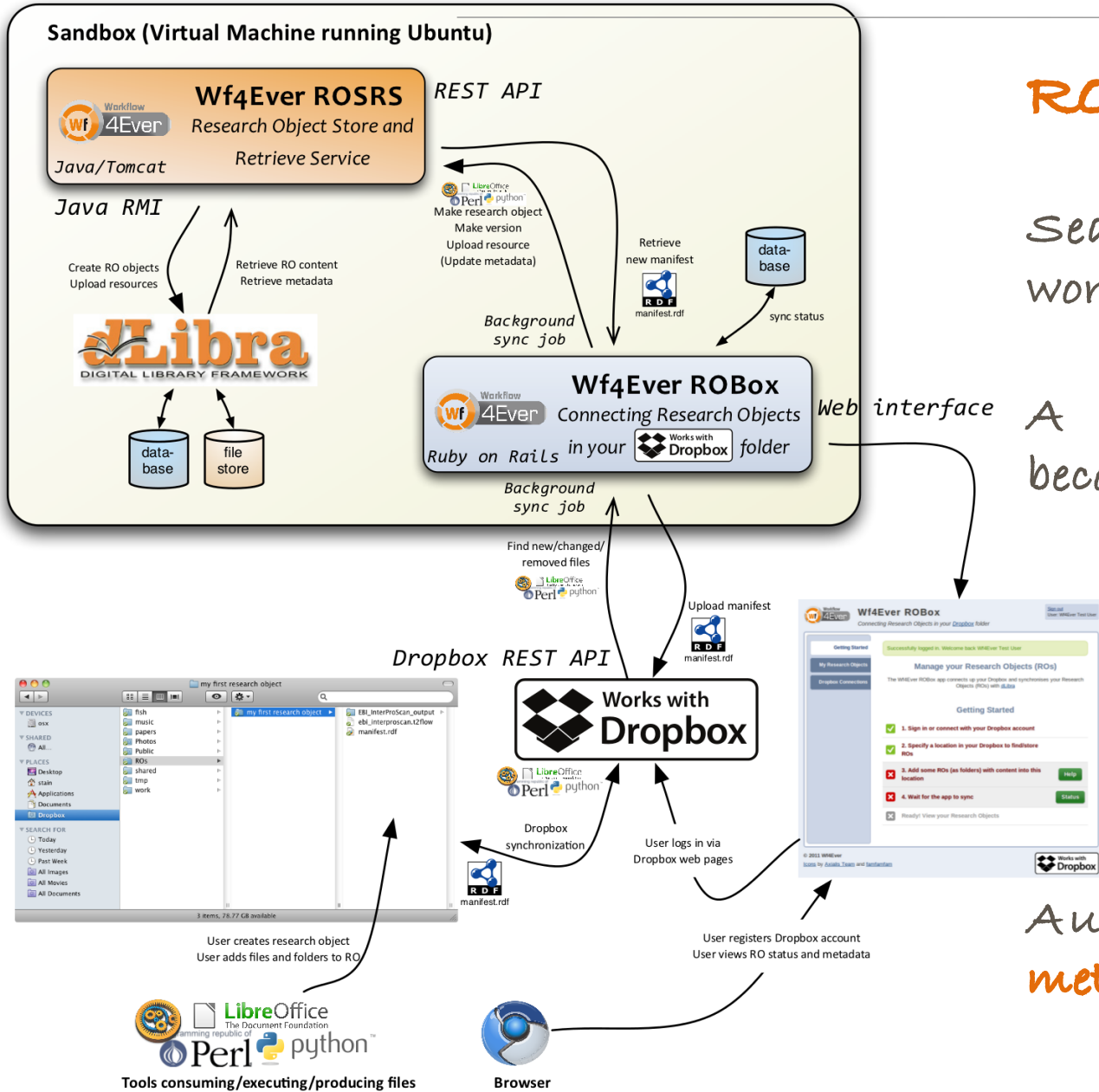
Calculation_of_distances__magnitudes_and_luminosities_usi...



Proposed improvements for Taverna

- VO Registry Access perspective
- STILTS VOTable Library Integration
- **SAMP (Connectivity with VO Software)**
- **Python based Beanshells - Done**
- Simple standard functions for Astronomy
- ODBC Connector to DB





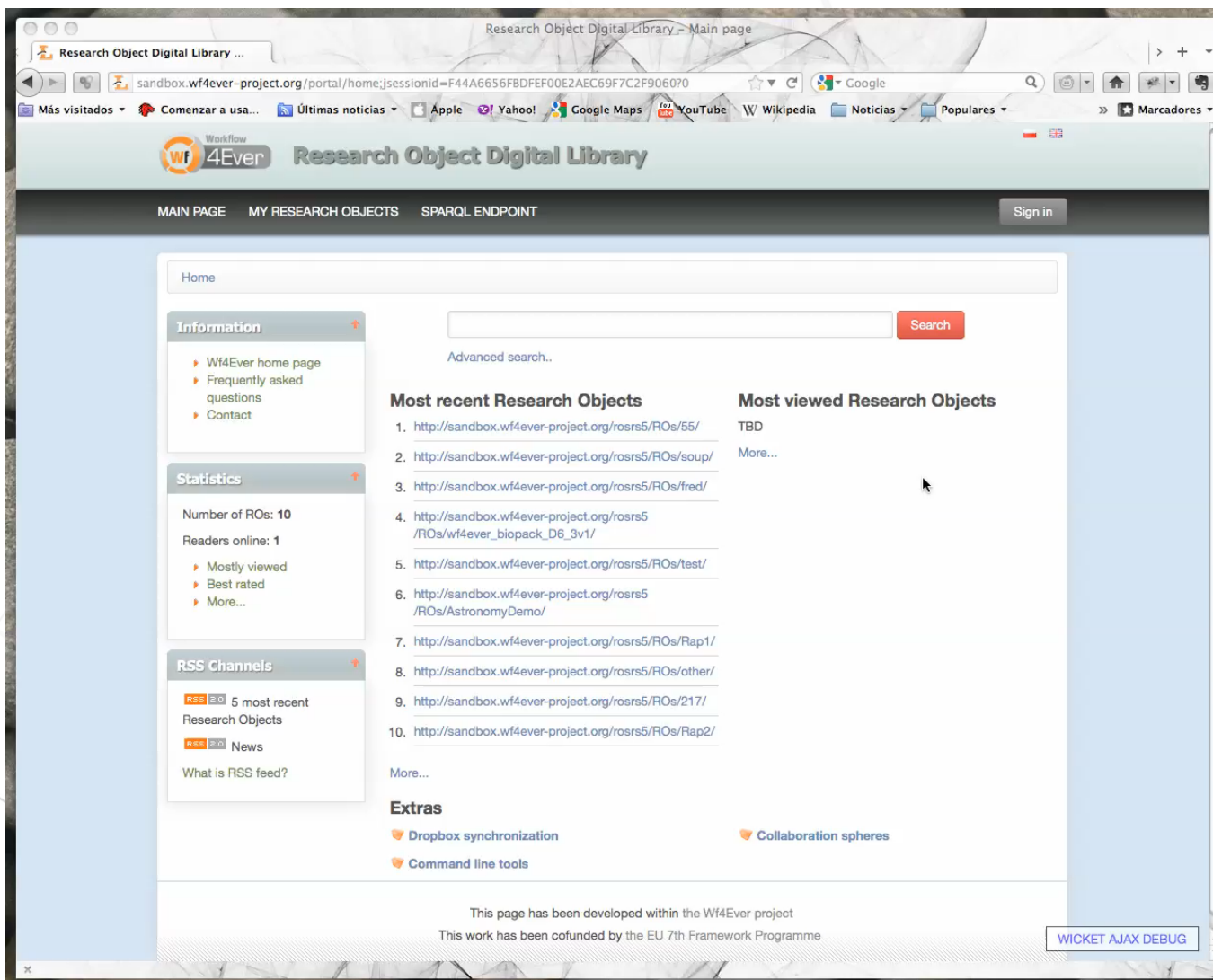
ROBOX

Seamless contribution to a working collaborative platform

A shared folder in Dropbox becomes a working RO

Automatic generation of metadata

RO Digital Library and RO Import



The screenshot shows the main page of the Research Object Digital Library. The browser address bar displays the URL: `sandbox.wf4ever-project.org/portal/home;jsessionid=F44A6656FBDFE00E2AEC69F7C2F906070`. The page features a navigation menu with links for MAIN PAGE, MY RESEARCH OBJECTS, and SPARQL ENDPOINT, along with a Sign in button. The main content area includes a search bar, a search button, and a section for Most recent Research Objects with a list of 10 URLs. Other sections include Information, Statistics, RSS Channels, and Extras.

Research Object Digital Library - Main page

Research Object Digital Library ...

sandbox.wf4ever-project.org/portal/home;jsessionid=F44A6656FBDFE00E2AEC69F7C2F906070

Más visitados Comenzar a usa... Últimas noticias Apple Yahoo! Google Maps YouTube Wikipedia Noticias Populares Marcadores

Workflow 4Ever Research Object Digital Library

MAIN PAGE MY RESEARCH OBJECTS SPARQL ENDPOINT Sign in

Home

Information

- Wf4Ever home page
- Frequently asked questions
- Contact

Statistics

Number of ROs: 10

Readers online: 1

- Mostly viewed
- Best rated
- More...

RSS Channels

- 5 most recent Research Objects
- News

What is RSS feed?

Advanced search..

Search

Most recent Research Objects

- <http://sandbox.wf4ever-project.org/rosrs5/ROs/55/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/soup/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/fred/>
- http://sandbox.wf4ever-project.org/rosrs5/ROs/wf4ever_biopack_D6_3v1/
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/test/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/AstronomyDemo/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/Rap1/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/other/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/217/>
- <http://sandbox.wf4ever-project.org/rosrs5/ROs/Rap2/>

More...

Most viewed Research Objects

TBD

More...

Extras

- Dropbox synchronization
- Command line tools
- Collaboration spheres

This page has been developed within the Wf4Ever project
This work has been cofunded by the EU 7th Framework Programme

WICKET AJAX DEBUG

Wf4Ever - RO Annotator MOCKUP

Research Object: Epigenius_experiment1

- └ Datasets
 - HD_dataset1 (GEO series datafile)
 - HD_dataset2 (GEO series datafile)
- └ Scripts
- └ Web Services
- └ Workflows
- └ Docs

Annotating "HD_dataset1 (GEO series datafile)"

Type: GEO series datafile

Keywords: human, brain, datas...

Description: Human brain data...

Role: To be used as input...

Created At: 2011-09-06 11:00...

What kind of annotation is this?

Description

Value for the annotation

Human brain dataset. 44 HD samples, 36 Controls age and sex matched. Brain areas: caudate nucleus, frontal cortex and cerebellum. Affymetrix platform. Rows correspond to probe ids and columns to samples.

Save Changes Cancel

- Anatomy of a Research Object
- Annotations on RO components
- RO **Graphical Representation**
- Data/Sessions Inspection (SAMP)

Home / Research Object: <http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

<http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

RO

- gathering_of_physical_properties_from_hyperleda_database_7i
- comparison_and_update_values_475535.
- scripts.zip
- data.zip
- references.zip
- CONTENT.txt
- D5.3v1_1.0.pdf
- calculating_the_total_luminosity_of_a_galaxy_using_properties_
- calculating_the_total_luminosity_of_a_galaxy_using_properties_
- README.txt
- RECIPES.txt
- sql.zip

Item info

Resource URI: <http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

Download URI: <http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

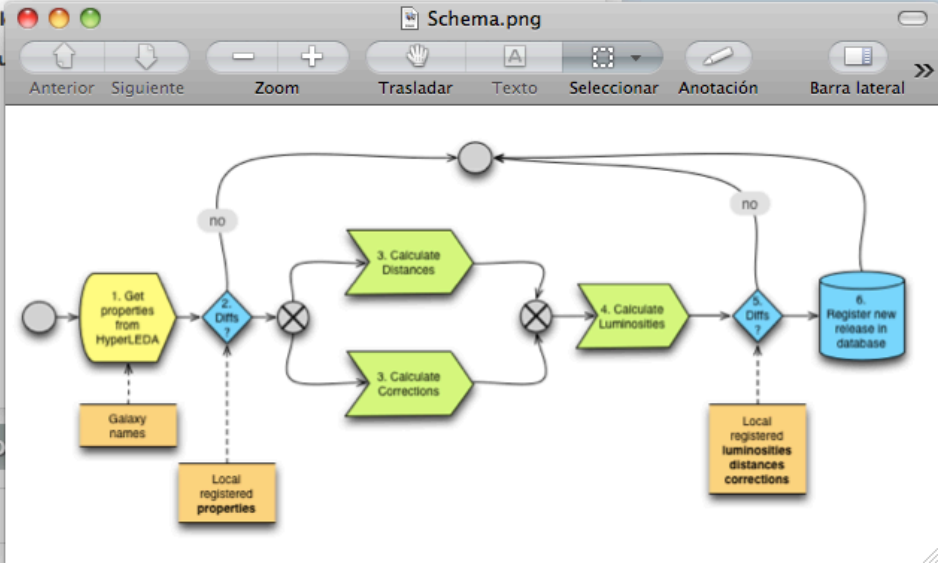
Created by: Jose Enrique Ruiz

Created on: 2012.01.08 17:09:14 CET

Annotations: <http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

Annotations	
2012.01.08 17:12:35 CET	Jose Enrique Ruiz

Statements



```

graph LR
    Start(( )) --> T1(( ))
    T1 --> N1[Galaxy names]
    T1 --> N2[Local registered properties]
    N1 --> S1[1. Get properties from HyperLEDA]
    S1 --> D1{2. Diffs ?}
    D1 --> S2[3. Calculate Corrections]
    D1 --> S3[3. Calculate Distances]
    S2 --> T2(( ))
    S3 --> T2
    T2 --> S4[4. Calculate Luminosities]
    S4 --> D2{5. Diffs ?}
    D2 --> S5[6. Register new release in database]
    D2 --> T1
    
```

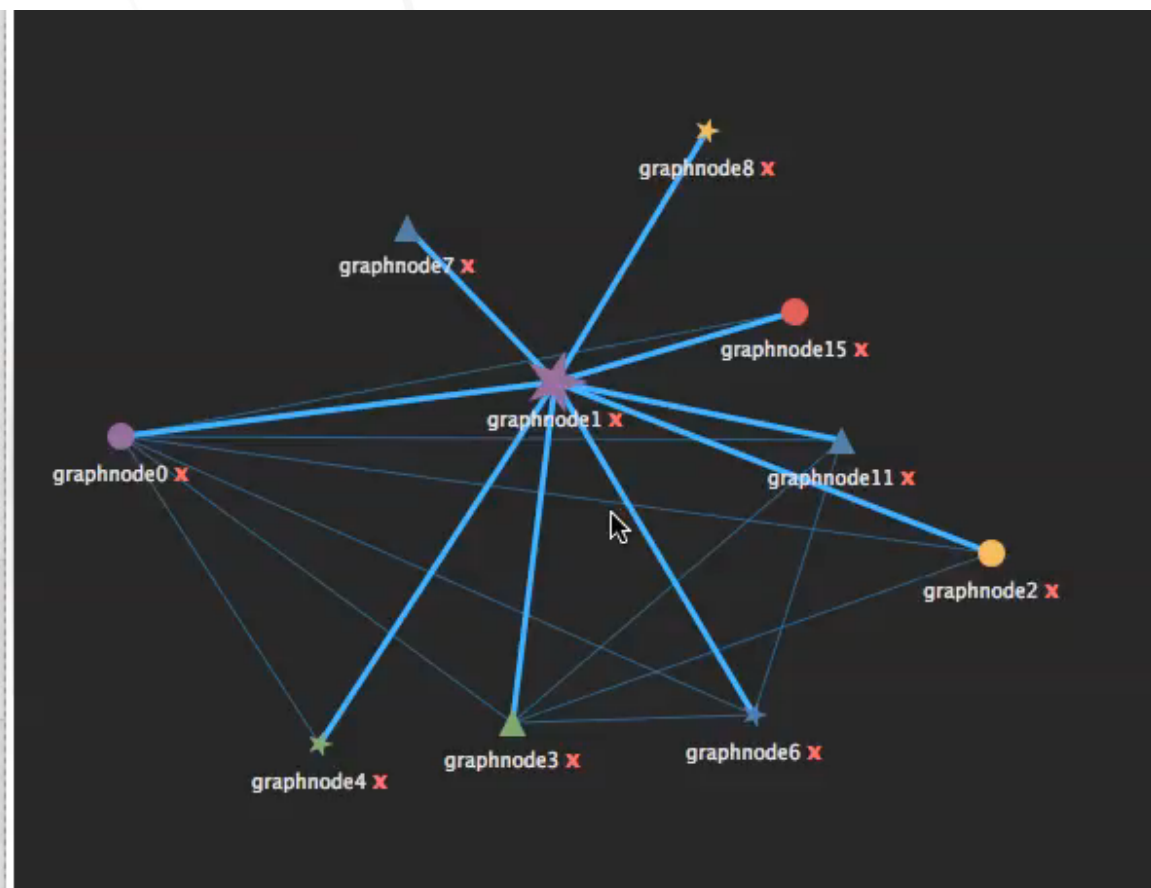

RO visualization

RO

- gathering_of_physical_properties_from_hyperleda_database_7i
- comparison_and_update_values_475535.
- scripts.zip
- data.zip
- references.zip
- CONTENT.txt
- D5.3v1_1.0.pdf
- calculating_the_total_luminosity_of_a_galaxy_using_properties_.
- calculating_the_total_luminosity_of_a_galaxy_using_properties_.
- README.txt
- RECIPES.txt
- sql.zip

Add folder Add resource Delete resource

Download metadata Publish



http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/

RO

- gathering_of_physical_properties_from_hyperleda_database_77
- comparison_and_update_values_475535.
- scripts.zip
- data.zip
- references.zip
- CONTENT.txt
- D5.3v1_1.0.pdf
- calculating_the_total_luminosity_of_a_galaxy_using_properties_
- calculating_the_total_luminosity_of_a_galaxy_using_properties_
- README.txt
- RECIPES.txt
- sql.zip

Add folder Add resource Delete resource

Download metadata Publish

Item info

Resource URI: <http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

Download URI: <http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/>

Created by: Jose Enrique Ruiz

Created on: 2012.01.08 17:09:14 CET

File size: --

Number of annotations: 1

Keywords [\[galaxies\]](#)[\[catalogs\]](#)

Integrity 50%

Rating

★★★☆☆

Downloads 36

Citations [\[2\]](#)

Re-used [\[1\]](#)

Comments [\[4\]](#)

[\[Previous version | Next version\]](#)

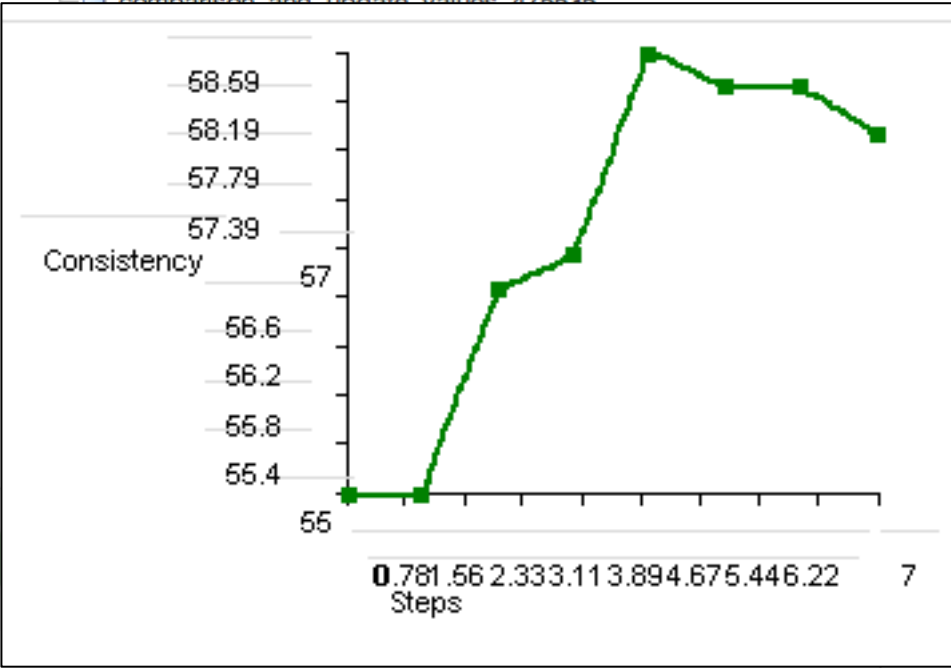
http://sandbox.wf4ever-project.org/rosrs5/ROs/HyperLEDALuminosities/

RO

- gathering_of_physical_properties_from_hyperleda_database_71
- comparison_and_update_values_475525

Item info

Resource URI: <http://sandbox.wf4ever->



Steps	Consistency
0	55
1	55.4
2	56.78
3	57.0
4	58.59
5	58.19
6	58.19
7	57.79

1. Alice adds Recipe.txt
2. John adds Results2.txt
3. Alice adds Bibliography.pdf
4. John removes Scrtip.py
5. John edits annotation on Recipe.txt
6. Unknown adds Dropme.txt

Download metadata Publish

Re-used [1]

Comments [4]

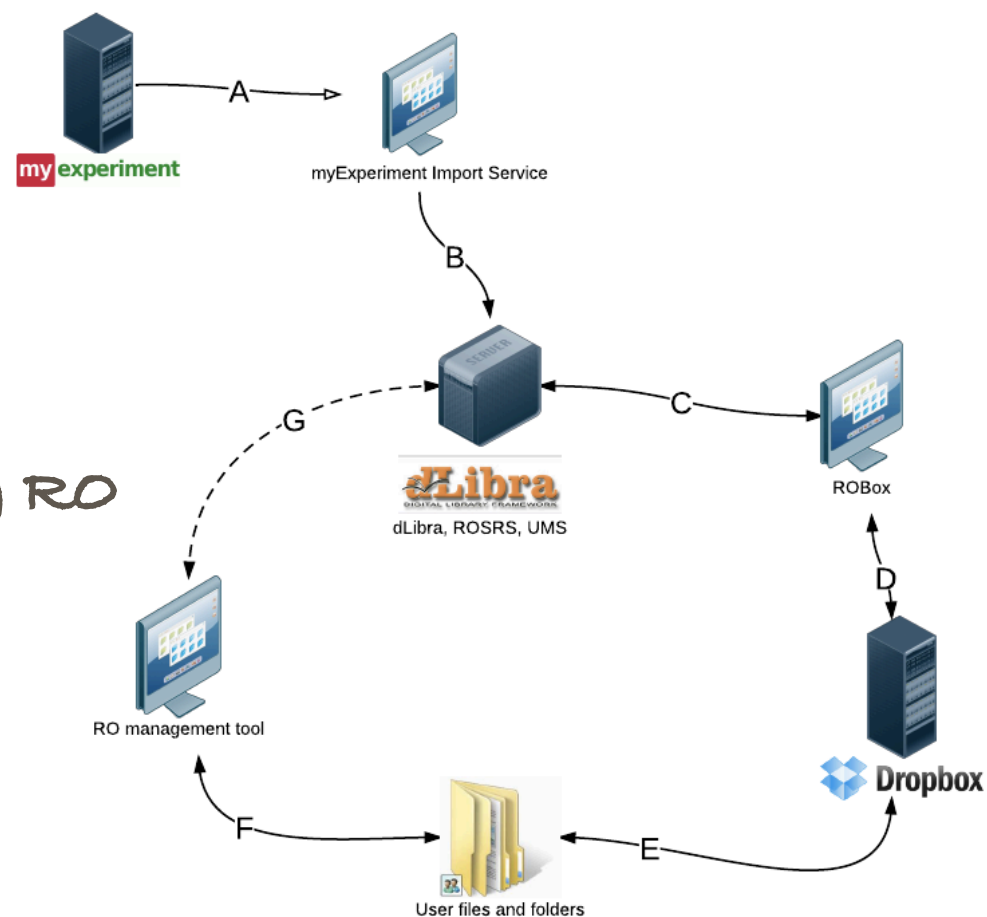
[Previous version | Next version]

Notification Service for Authors

What should be notified ?

- Fails
- Downloads
- Annotations
- Linked/Similarity
- Modifications on Working RO
- Acknowledgements

Notification Management Tool
Avoid spam



Astronomy WP

- Development and Implementation of “Extraction of Sources”
- Development and Implementation of “Modelling of 3D Data”
- Explore experiments subject to be migrated to Wf/RO methodology
- Contribute to IVOA in Semantics for Processes

Other WPs

Continue Providing Feedback

- RO Model, Architecture, Integrity & Authenticity, Information Quality, etc.
- Software integration and improved functionalities (SAMP, Taverna, etc.)
- Prototypes for management and visualization of RO

Community engagement

- Approach Astro-Informaticians
- Continue pushing in the IVOA Community
- Tackle collaboration with Publishers



Distributed data analysis in the VO

- Panchromatic, multi-archive, multi-facility
- Executes in the VO Infrastructure
- Orchestration of simple services

Present processing pipelines

- Produce exploitable data
- Provenance modeling
- VO compliant data

Data processing from the VO

- Provide custom re-processing to VO users
- Virtual data generation through UWS in VOspace

Workflows VO Characterization

- Inputs
- Outputs
- Processes
- Descriptions
- Metadata
- Etc..

IVOA Working Groups

- **Data Modeling**
Characterization, Provenance..
- **Semantics**
Ontologies, Vocabularies for Processes
- **Data Access Layer**
TAP, self-descriptive Protocols..
- **Grid and Web Services**
UWS, VOSpace, SSO..
- **Applications**
SAMP
- **IG. KDD**
Knowledge Discovery and Data Mining
- **IG. Data Curation and Preservation**
Persistent Identifiers, Curation of VO Resources..
Wf4Ever Project, US VAO semantic linking of proposals, publications, data



IVOA Note

Scientific Workflows in the VO
André Schaaff & Jose Enrique Ruiz

workflow@ivoa.net

More info

<http://amiga.iaa.es/p/212-workflows.htm>

<http://www.wf4ever-project.org>

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