

The astronomical Virtual Observatory

Current status and meeting objectives

F. Genova

10 June 2013, CoSADIE Data Centre
Forum



The VO aim

- *Enable seamless access to the wealth of astronomical resources*
- An ambitious goal and no pre-existing model to follow
- Pragmatic approach with a few basic principles
 - A global VO
 - Always keep in mind science usage and implementation by data centres
 - Fulfil astronomy's needs but when possible use generic building blocks to allow wider interoperability

A global VO

- From the very beginning a fully global endeavour
- Neither a French VO nor a German VO, nor an Alsacian nor a Bade-Wurtemberg VO
- The VO basis in INTEROPERABILITY
- Global interoperability means world-wide agreement
- Hence the International Virtual Observatory Alliance

Interoperability: first steps



- January 2002 Strasbourg
OPTICON European WG but
international participation
First Interoperability meeting – >
VOTable



CDS/US-VO > Pre-IVOA standard

- June 2002 Garching
 - *Toward an International Virtual Observatory*
(ESO/ESA/NASA/NSF)
 - Creation of IVOA



IVOA.net - Mozilla Firefox

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IVOA.net

www.ivoa.net

Google

Home Astronomers **Deployers** Members

INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE



The Virtual Observatory (VO) is the vision that astronomical datasets and other resources should work as a seamless whole. Many projects and data centres worldwide are working towards this goal. The International Virtual Observatory Alliance (IVOA) is an organisation that debates and agrees the technical standards that are needed to make the VO possible. It also acts as a focus for VO aspirations, a framework for discussing and sharing VO ideas and technology, and body for promoting and publicising the VO.

To learn more about the IVOA as an organisation, read the "[About](#)" section.

To learn more about the VO from a user's point of view, including how to find VO tools and services, read the "[Astronomers](#)" section. There is also a page about the [VO for students and the public](#).


To learn how to publish VO services, or write VO-compatible software, start by reading the "[Deployers/Developers](#)" section.

Internal IVOA discussions are publicly viewable in the "[Members](#)" section.




May 2013 Issue of the

For Astronomers




- Getting Started / Using the VO
- VO Glossary / VO Applications
- IVOA newsletter / VO for Students & Public

For Deployers/Developers



- Intro to VO Concepts / IVOA Standards / Guide to Publishing in the VO / Technical Glossary

For Members



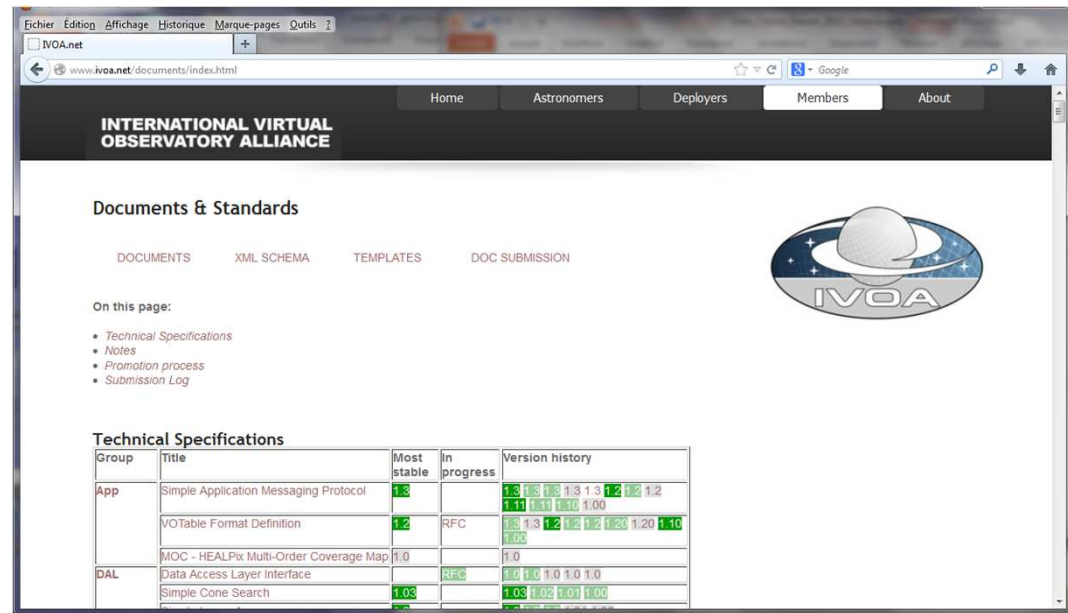
- IVOA Calendar / Working Twiki / Documents in Progress / Mailing Lists

www.ivoa.net/deployers

Interoperability standards

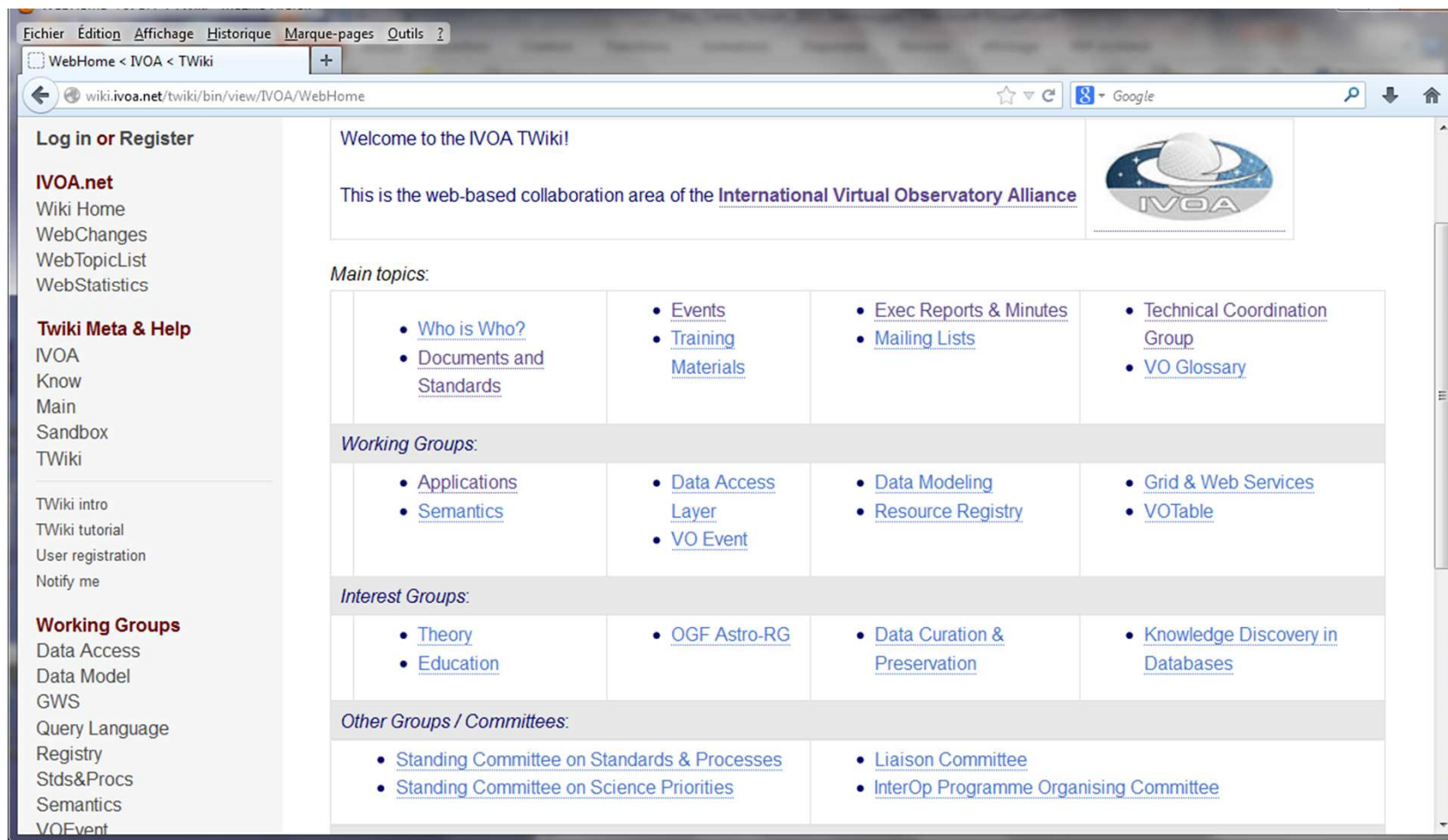
Procedure adapted from the W3C

- Note
- Working Draft
- Proposed Recommendation
- Recommendation



<http://www.ivoa.net/documents/index.html>

IVOA organisation



The screenshot shows the IVOA TWiki web page. The browser's address bar displays `wiki.ivoa.net/twiki/bin/view/IVOA/WebHome`. The page features a left sidebar with navigation links and a main content area with a welcome message and a grid of topic links.

Log in or Register

IVOA.net

- Wiki Home
- WebChanges
- WebTopicList
- WebStatistics

Twiki Meta & Help

- IVOA
- Know
- Main
- Sandbox
- Twiki


Twiki intro
Twiki tutorial
User registration
Notify me

Working Groups

- Data Access
- Data Model
- GWS
- Query Language
- Registry
- Stds&Procs
- Semantics
- VOEvent

Welcome to the IVOA TWiki!

This is the web-based collaboration area of the International Virtual Observatory Alliance



Main topics:

<ul style="list-style-type: none">Who is Who?Documents and Standards	<ul style="list-style-type: none">EventsTraining Materials	<ul style="list-style-type: none">Exec Reports & MinutesMailing Lists	<ul style="list-style-type: none">Technical Coordination GroupVO Glossary
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Working Groups:

<ul style="list-style-type: none">ApplicationsSemantics	<ul style="list-style-type: none">Data Access LayerVO Event	<ul style="list-style-type: none">Data ModelingResource Registry	<ul style="list-style-type: none">Grid & Web ServicesVOTable
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Interest Groups:

<ul style="list-style-type: none">TheoryEducation	<ul style="list-style-type: none">OGF Astro-RG	<ul style="list-style-type: none">Data Curation & Preservation	<ul style="list-style-type: none">Knowledge Discovery in Databases
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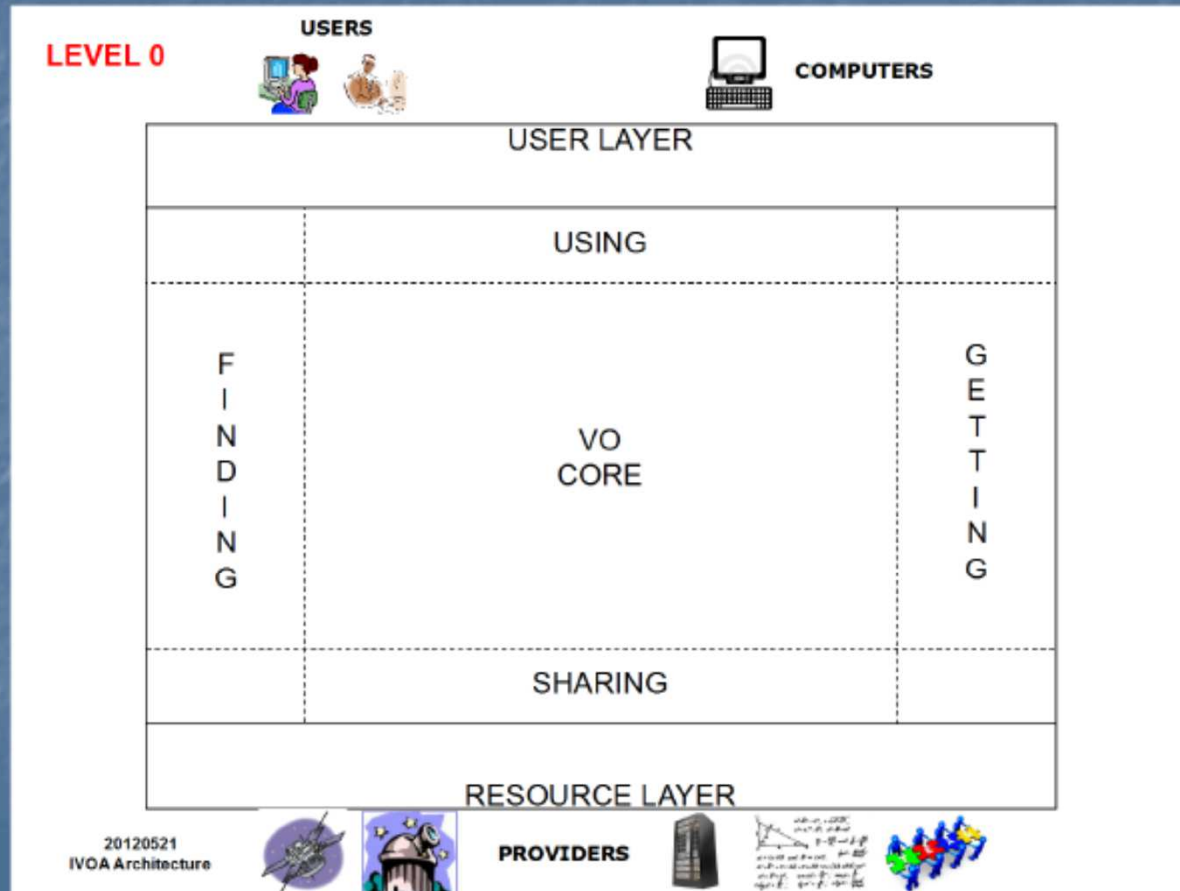
Other Groups / Committees:

<ul style="list-style-type: none">Standing Committee on Standards & ProcessesStanding Committee on Science Priorities	<ul style="list-style-type: none">Liaison CommitteeInterOp Programme Organising Committee
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IVOA Architecture Level 0



TCG

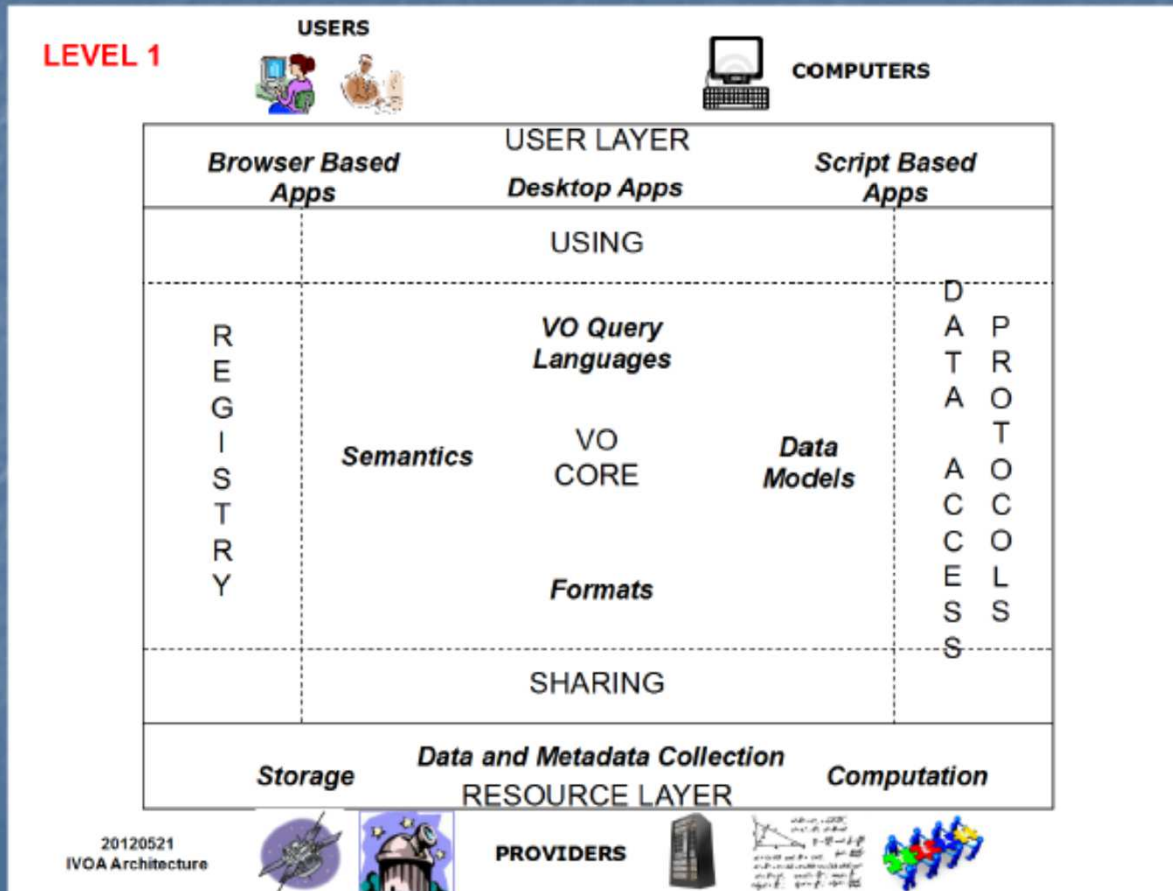


Stable since
creation

IVOA Architecture Level 1



TCG

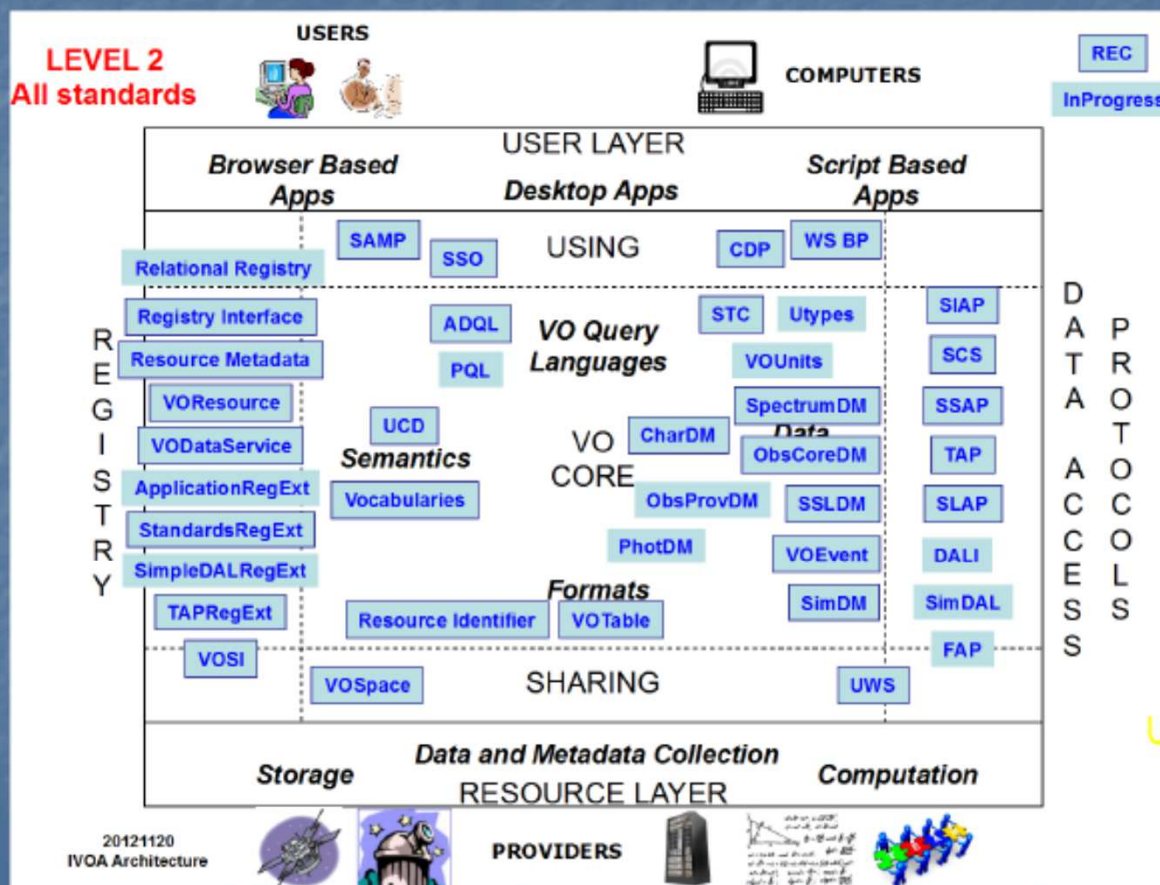


Stable since
creation

IVOA Architecture Level 2



TCG

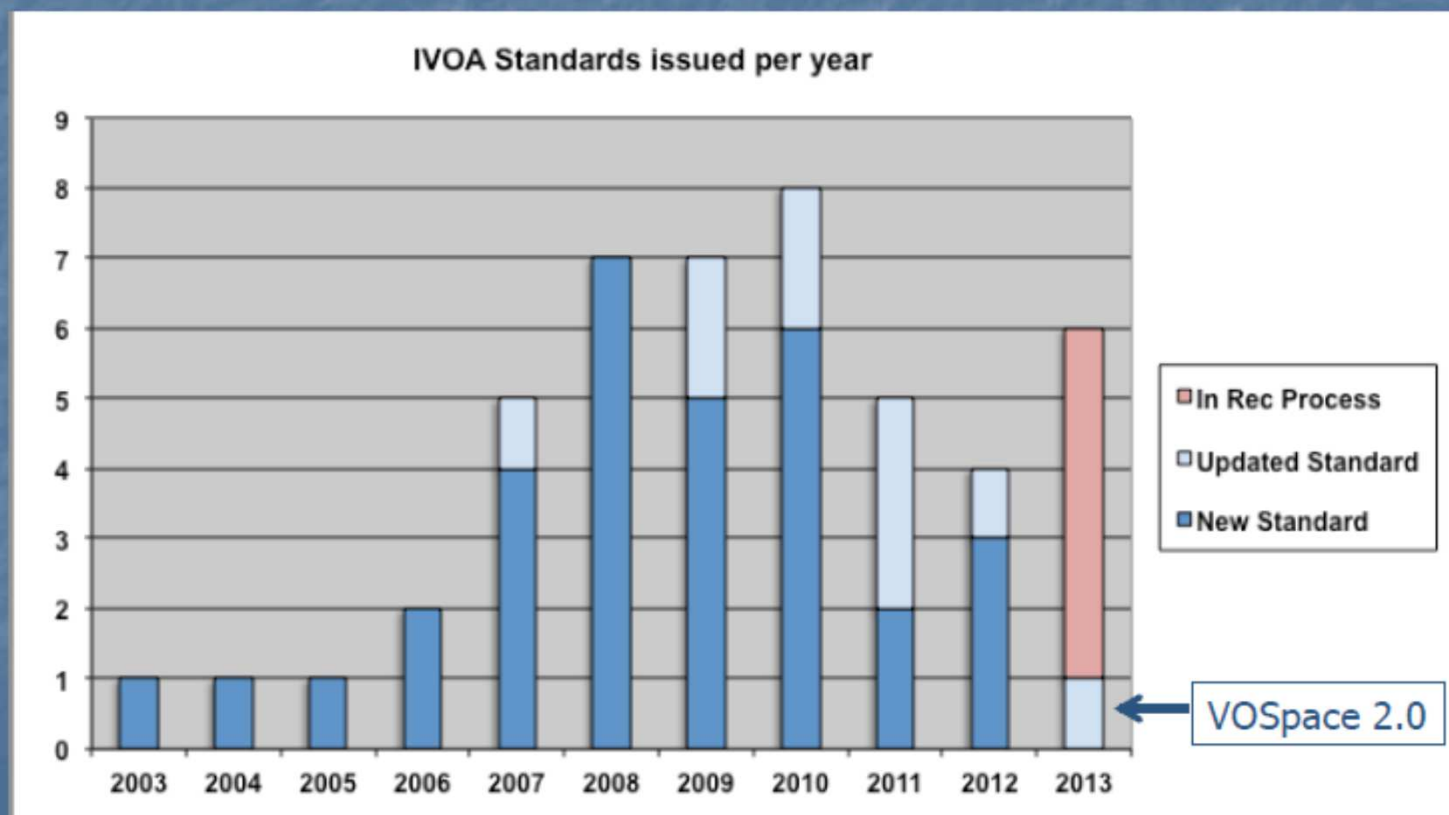


Updated with new standards

IVOA Standards per year

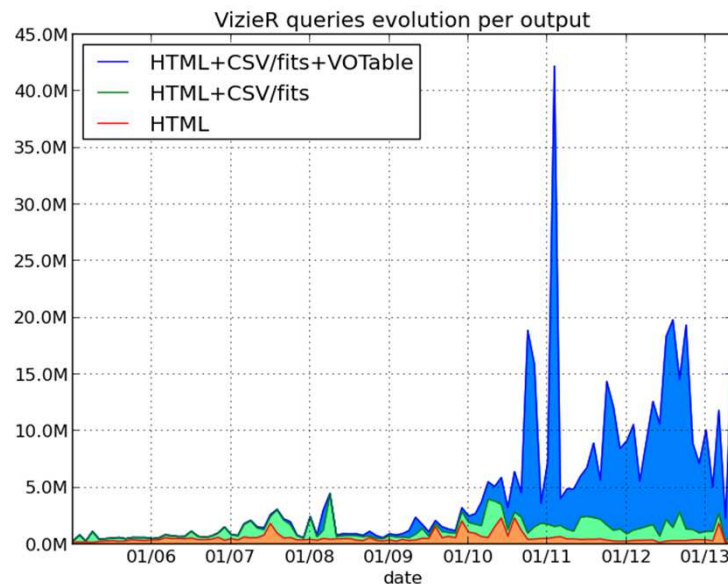


TCG



VO status

Evolution of VizieR queries through VO standards



- Building blocks are operational
- Standards and tools ARE used
- IVOA priorities
 - 3D data
 - Time domain
- Key challenge: uptake by users
 - Astronomers
 - Data Centres

Euro-VO projects

- Organise the European participation in the VO endeavour
- Several aspects linked to different stakeholders
 - Astronomers – VO schools and tutorials
 - Data Centres – this meeting (Census: 2008/10/13)
 - VO developers – Technology Forums
 - Education

CoSADIE

- *Collaborative and Sustainable Data Infrastructure for Europe* - The current Euro-VO project
- A Coordination Action funded by the Capacities Programme of the FP7, under e-Infrastructures
- Sept. 2012-Aug. 2014, 480 k€, 5 partners
CNRS, INAF, INTA, UEDIN, UHEI
i.e. France, Italy, Spain, UK, Germany
ESA and ESO 'associated partners'

www.cosadie.eu

The screenshot shows a Mozilla Firefox browser window displaying the CoSADIE TWiki page. The browser's address bar shows the URL `www.cosadie.eu/twiki/bin/view/CoSADIE/WebHome`. The page features a navigation bar with links like 'Home', 'CoSADIE Web', 'View', 'Edit', 'User Reference', 'Admin Maintenance', and 'Categories'. Below the navigation bar is a header section with the 'EURO VO CoSADIE' logo, a search bar, and 'Edit' and 'Attach' buttons. The main content area begins with a 'Tags' section and a heading 'Welcome to CoSADIE - Collaborative and Sustainable Astronomical Data Infrastructure for Europe'. The text describes CoSADIE as part of the international Virtual Observatory (VO) effort, supported by the EU in the framework of the FP7 initiative (Call INFRA-2012-3.3 Research Infrastructures, project 312559). It details the project's timeline from September 2012 to August 2014, its goals of developing strategies and coordination structures, and its focus on disseminating results and gathering requirements. The page also mentions CoSADIE's succession of previous initiatives: Euro-VO International Cooperation Empowerment (EuroVO-ICE), Euro-VO Astronomical Infrastructure for Data Access (EuroVO-AIDA), and Euro-VO Data Centre Alliance (EuroVO-DCA). A 'Highlights' section at the bottom lists three key events: the CoSADIE Data Centre Forum (10-11 June 2013, Heidelberg, Germany), the IVOA Interoperability meeting (12-17 May 2013, Heidelberg, Germany), and the CoSADIE VO School (5-7 February 2013, Madrid, Spain).

WebHome < CoSADIE < TWiki - Mozilla Firefox

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WebHome < CoSADIE < TWiki

www.cosadie.eu/twiki/bin/view/CoSADIE/WebHome

Home CoSADIE Web View Edit User Reference Admin Maintenance Categories Account

EURO VO
CoSADIE Collaborative and Sustainable Astronomical Data Infrastructure for Europe

Twiki, Inc.

Jump Search Edit Attach

Tags: create new tag , view all tags

Welcome to CoSADIE - Collaborative and Sustainable Astronomical Data Infrastructure for Europe

COSADIE is part of the international [Virtual Observatory](#) (VO) effort to maintain a comprehensive infrastructure for finding, querying, and accessing astronomical data. We are organized as a Coordination Action supported by EU in the framework of the FP7 initiative (Call INFRA-2012-3.3 Research Infrastructures, project 312559)

The project will run from 1 September 2012 through 31 August 2014. It is centred on the development of strategies and coordination structures, through a feasibility study for a sustainable European Virtual Observatory giving access to the open, highly diverse, highly distributed data holdings of astronomy. It also aims at disseminating results among and gathering requirements from the scientific community (users) and the data providers. It will co-ordinate European technical activities, and includes the promotion and monitoring of international standards, and their adoption through the International Virtual Observatory Alliance IVOA. Co-operation and interface with the grid and cloud will also be assessed. Specific care will be taken to consolidate the high impact VObs outreach activities towards education and the general public.

CoSADIE succeeds the Coordination Action [Euro-VO International Cooperation Empowerment](#) (EuroVO-ICE), which ended on 31 August 2012, the Integrated Infrastructure Initiative [Euro-VO Astronomical Infrastructure for Data Access](#) (EuroVO-AIDA, 2008-2010), and the FP6 Coordination Action [Euro-VO Data Centre Alliance](#) (EuroVO-DCA, 2006-2008).

This site doubles as the web-based collaboration area of the project.

Highlights

- [CoSADIE Data Centre Forum](#): 10-11 June 2013, Heidelberg, Germany
- [IVOA Interoperability meeting](#): 12-17 May 2013, Heidelberg, Germany
- [CoSADIE VO School](#) 5-7 February 2013, Madrid, Spain

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WebHome < CoSADIE < TWiki

www.cosadie.eu/twiki/bin/view/CoSADIE/WebHome

General information

• Project Overview	• Project Partners	• Who is Who	• Schedule
• Euro-VO	• International Virtual Observatory Alliance	• IVOA Standards	• IVOA Working Groups
• Data Centres in the VO			

CoSADIE Bodies

• Board	• Euro-VO Science Advisory Committee
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Work Packages

• WP1 : Management	• WP2 : Increasing awareness and gathering requirements from the user and provider communities	
• WP3 : Coordinating technical activities and defining the technical needs to maintain the VO Framework	• WP4 : Outreach towards education and the general public interested in astronomy	• WP5 : Strategy, governance and financial sustainability of Euro-VO

CoSADIE Web Utilities

- [WebSearch](#) - simple search
- [WebSearchAdvanced](#) - advanced search

e-infrastructure

CAPACITIES

12:10

CoSADIE aims

- Maintain essential coordination activities
- Prepare for the future
 - Assess all elements of a sustainable Euro-VO*
 - Activities supported at different levels*
- Networking activities, service activities, R&D
- Support to uptake by data centres is an essential element

The Euro-VO census of data providers

- Census of European Data Centres (EuroVO-DCA, EuroVO-AIDA, 2009, 2010) – Gabriel's talk
- Inclusive definition : Data Centres populate the VO with data and services, service to the community, added-value, sustainability, quality
- 69 'data centres' answered
 - Data archives, services, theory data and services
 - Some of these services are widely used by scientists to access to bibliography, data and tools
 - The provision of data and services has clearly been strongly encouraged by the development of the VO

Data centres in Europe (and elsewhere!)

- A huge diversity in aims, size and organisation
 - large services provided by international agencies, with archives of the large ground-based and space instruments
 - large systematic surveys of the sky, results of large simulations
 - generalist data bases and services
 - smaller contributions of scientific teams which share their expertise
- An *ecosystem* of data and service providers willing to share data and knowledge - a distributed, heterogeneous system with no central point nor hierarchical organisation

Which support to take-up?

- Scientists
 - Topical ‘Community feedback’ workshop
 - Calls for proposals for advanced usage
 - Schools (also at national level)
 - On-line tutorials
- Data providers
 - Implementation tools
 - On-line tutorials
 - Data Centre Schools (also at national level)
 - Others?
 - Data Centre Forum to discuss requirements and feedback

This meeting aims

Who are you?

What are
your expectations and needs
wrt. the VO?