



International

Virtual

Observatory

Alliance

The IVOA in 2010: Technical Assessment and Roadmap

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<http://www.ivoa.net/Documents/Notes/IVOATechRoadmap2009/>

<http://www.ivoa.net/Documents/latest/IVOARoadMap-2008.html>

<http://www.ivoa.net/Documents/latest/IVOARoadMap-2007.html>

<http://www.ivoa.net/Documents/latest/RoadMap-2006.html>

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Previous version(s):

Editor:

Christophe Arviset, TCG Chair

Author(s):

IVOA Technical Coordination Group (tcg@ivoa.net):

Christophe Arviset, Severin Gaudet – TCG

Paolo Padovani, Ajit Kembhavi – IVOA Exec

Tom MacGlynn, Mark Taylor – Application WG

Pat Dowler, Mike Fitzpatrick – DAL WG

Mireille Louys, Jesus Salgado – DM WG

Matthew Graham, Paul Harrison – GWS WG

Ray Plante, Gretchen Greene – Registry WG

Sebastien Derriere, Norman Gray – Semantics WG

Rob Seaman – VOEvent WG

Alberto Accomazzi – Data Curation and Preservation IG

Herve Wozniak, Claudio Gheller – Theory IG

Francoise Genova – Standards and Processes Committee

Dave de Young – Standing Committee on Science Priorities

Abstract

This note describes the main technical achievements of the IVOA for the last year as well as the updated roadmaps for each Working Group and Interest Group for the upcoming year, detailing plans and associated milestones. Furthermore, it identifies specific issues that may require more focus coordination between some working groups and interest groups.

This notes focuses on the technical aspects of the IVOA work and does not cover the more general executive, organization and overall strategy areas of the IVOA.

Status of This Document

This is an IVOA Note expressing suggestions from and opinions of the authors. It is intended to share best practices, possible approaches, or other perspectives on interoperability with the Virtual Observatory. It should not be referenced or otherwise interpreted as a standard specification.

Once formally issued, it will be reviewed and accepted by the IVOA Executive Committee.

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1 IVOA Main Achievements since mid 2009

1.1 General

The TCG released in October 2009 the “The IVOA in 2009: Technical Assessment and Roadmap” that can be found at:

<http://www.ivoa.net/Documents/Notes/IVOATechRoadmap2009/>

The TCG met via teleconference in September 2009 to review status and plans before the corresponding IVOA interoperability meeting in Garching.

The main TCG highlight of the past year has been the first Face to Face TCG meeting (TCG F2F#1) that took place on 14-15 May 2010, prior to the IVOA interoperability meeting in Victoria.

The main objectives of this F2F#1 meeting were:

1. Review and update IVOA top level architecture
2. Study main Science use cases for the VO
3. Discuss and review TCG organization

Last but not least, this first TCG real meeting was the opportunity to build a TCG team atmosphere, to work together on these very important aspects.

Agenda, presentations and results of the TCG F2F#1 can be found at:

<http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/TCGMeetingAgenda201005>

The objectives of this F2F#1 meeting were fully met and a lot was achieved. The main results are reported in the following sections.

After this successful experience, it was decided to reconvene TCG F2F meetings, probably using the days prior to the IVOA interoperability meetings.

For the last two years, some discussions took place to try to have a more commonly structured template for WG and IG web pages to ease the access to information. Unfortunately, due to lack of resources, this has not been implemented. We continue to urge the WGs and IGs to pay some attention to the organization of content so that people not already familiar with IVOA standards can follow the processes and understand the protocols without undue effort.

1.2 Science use cases and Science Priorities

Important discussions have taken place during the last year within the IVOA to ensure that the IVOA responds to scientific requirements and brings technical solutions to science use cases. These led to the constitution of the Standing Committee on Science Priorities. This committee collects scientific requirements from the scientific community and then defines the resulting science use cases. The IVOA TCG should take into account these science use cases when proposing priorities of work for defining (or updating) IVOA standards.

A good example of this process has been the ObsTAP project and the definition of the ObsCoreDM (Observation Core Data Model). The conjunction of TAP and ObsCoreDM (with some additional other VO Core existing standards) will be the technical solution to an expressed science case about accessing uniformly and consistently observational data from various data providers.

Apart from ObsTAP, other science cases which have been identified as first priority:

- SED (Spectral Energy Distribution) builder
- Search by list of sources and by class of sources
- VO “Portal”

These science cases have been presented at the TCG F2F#1 meeting, and required IVOA standards to fulfill these science cases have been identified and will be considered with high priority in the TCG work plan for the upcoming year.

For each science case, a scientist from the Committee on Science Priorities will be responsible to monitor and follow up the implementation of this science case. This will include monitoring and following up from the IVOA standard point of view in collaboration with the TCG, and also from the application developers and from the resource providers' points of view to ensure all aspects related to the science case are covered. Furthermore, it has been agreed that a special session reporting on the implementation of these science cases will take place at each IVOA interoperability meeting, starting at the upcoming one in Nara, Japan, December 2010.

1.3 TCG Organization

After many discussions, IVOA Document Standard v1.2 has become an IVOA Recommended standard, reflecting the recommendation process which had been followed for some time already.

For consistency, an update of the Charter for the IVOA TCG was required and released on 29th of March 2010 at:

<http://www.ivoa.net/Documents/Notes/TCG-Charter/>

Following discussions at the TCG F2F#1 and at the Executive committee, various important decisions have been taken with respect to the TCG organization effective May 2010:

- the VOQL WG has been merged with the DAL WG
- the VOTable WG has become inactive
- the Astro-RG IG has been dismantled and its potential activities transferred to the GWS WG
- during the TCG review of the standard recommendation process, the approvals of IGs and committees chair and vice chair are not longer mandatory to move the recommendation process forward. However, chairs and vice-chairs of IGs and committees are encouraged to give their comment and approval
- the chair of the Standing committee on Science Priorities is now part of the TCG

We also recognized that there are more and more WGs which are entering an “operations” phase rather than a “standards development” phase. This is particularly relevant for WG such as Applications, Registry and VOEvent. It was also evident during the “Validation and Verification” sessions at the Victoria interoperability meeting.

To reflect this state, it was agreed that during the next Interoperability meeting in Nara in December 2010, there should be special standards implementation and feedback session for each WG (joint sessions if applicable). Furthermore, each WG chair should look at all existing implementations of the WG standards, “learn” from these, and determine if modifications / improvements of the standards are required.

Various TCG members came to the end of their terms; hence there have been new members for the DAL WG, the DM WG and the Data Curation and Preservation IG. Furthermore, we welcome a new IG on Knowledge Discovery in Databases, with its chair Pepe Longo, recently appointed by the IVOA Exec.

1.4 List of IVOA Standards produced in the last year

Various standards have reached the REC status in the last year, with a particular achievement on the long awaited TAP!

Registry Interface and SIAP had been “de-facto” standards for many years, with numerous operational implementations, hence the completion of their recommendation status was necessary and welcome.

As said earlier, it was important to finalize the update of IVOA Document Standard v1.2, reflecting the way recommendation processes had been carried out for some time already.

2009			
Standards	WG	Date	Comments
Vocabularies 1.16	Semantics	September 2009	
VOSpace 1.5	GWS	September 2009	Update from VOSpace 1.0
Registry Interface 1.01	Registry	September 2009	
SIAP 1.0 Simple Image Access Protocol	DAL	November 2009	
VOTable v1.2 VOTable Format Definition	VOTABLE	November 2009	Update from VOTable 1.10
CDP 1.0 Credential Delegation Protocol	GWS	November 2009	
2010			
Standards	WG	Date	Comments
TAP 1.0 Table Access Protocol	DAL	February 2010	
IVOA Document Standards v1.2	Standards & Process Committee	March 2010	Update from IVOA Document Standards v1.0
Universal Worker Service	GWS	October 2010	
VODataService 1.1	Registry	October 2010	

Significant progress has also been made in a variety of standards that are currently in their Recommendation process so they should soon become a Recommendation (before the end of 2010), in particular:

- SLAP 1.0 together with SSLDM 1.0
- IVOA Support Interfaces VOSI 1.0
- Web Services Basic Profile
- SAMP 1.2 (small update from SAMP 1.1)

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As per the agreed science cases, it is also expected that ObsCoreDM and PhotDM move quickly through the recommendation process.

2 IVOA Architecture

The IVOA architecture has been thoroughly reviewed and updated during the TCG F2F#1 meeting. Three levels of description have been defined, Level 0 is a general, high level summary, Level 1 gives more details about components and functionalities, and Level 2 displays how IVOA standards fit into the architecture. A dedicated IVOA Note will be written in the coming months, but it was felt important to describe here the main Levels of it.

2.1 IVOA Architecture Level 0

Level 0 is a general, high level summary of the IVOA Architecture.

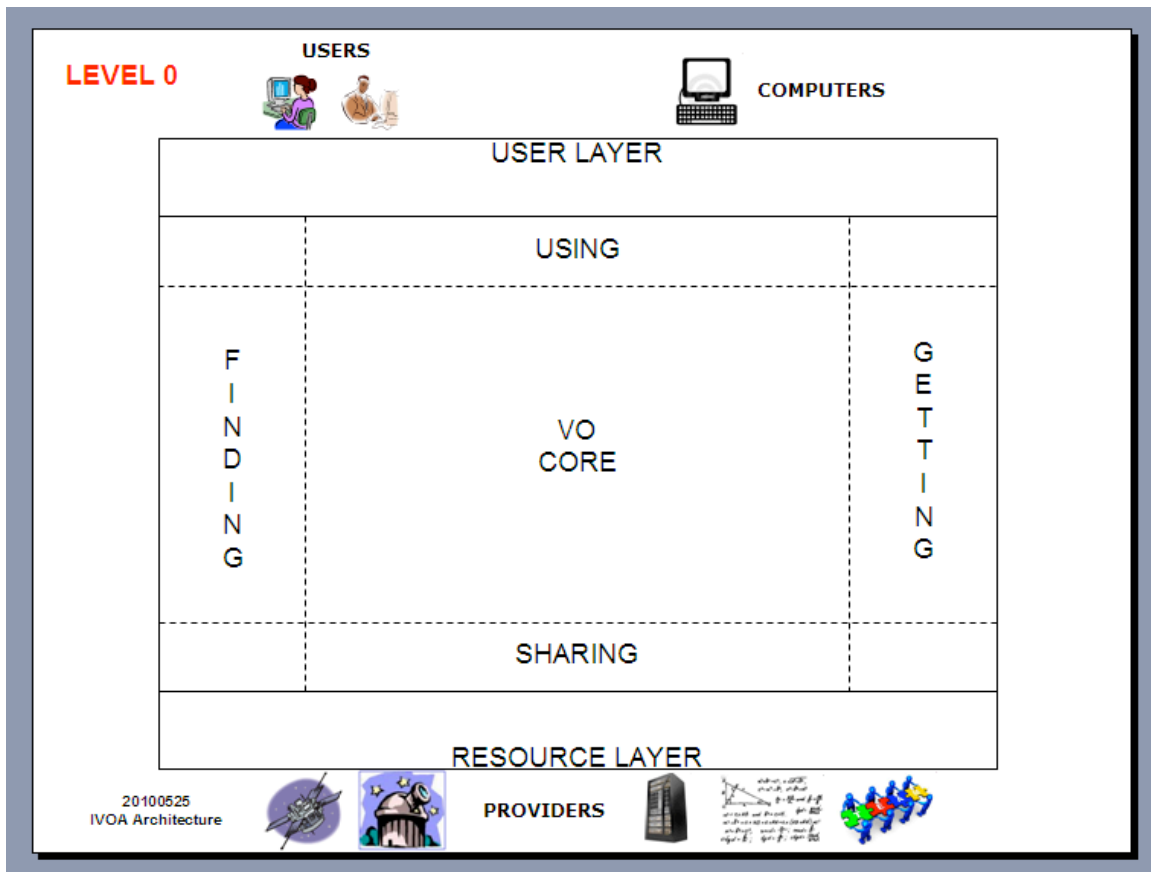


Figure 1 : IVOA Architecture Level 0

Astronomy produces lots of data of many kinds, coming from various sources: science space missions, ground based telescopes, theoretical models, compilations of results, etc. These data are usually managed by large data centres or smaller teams. These *providers* provide the scientific community with data and / or computing services through the Internet. This is the *Resource Layer*.

The “consumers” of these data and computing services, be it individual end user astronomers, research teams or computer systems, interact with the *User Layer*.

The *Virtual Observatory* is the necessary “middle layer” framework connecting the Resource Layer to the User Layer in a seamless and transparent manner. Like the web which enables end users and machines to access documents and services transparently wherever and however they are stored, the VO enables the astronomical scientific community to access astronomical resources wherever and however they are stored by the astronomical data and services providers. The VO provides a technical framework for *providers* to share their data and services (“Sharing”), and allowing *consumers* to find (“Finding”) these resources, to get them (“Getting”) and to use them (“Using”). To enable these functionalities, the definition of some core astronomically-oriented standards (“VO Core”) is also necessary.

2.2 IVOA Architecture Level 1

The Level 1 of the IVOA architecture is an extension of the Level 0, displaying more details about the functionalities and building blocks within the different layers. For completeness, part of the description is repeated from the Level 0 one, so the Level 1 description can be used as a self contained block.

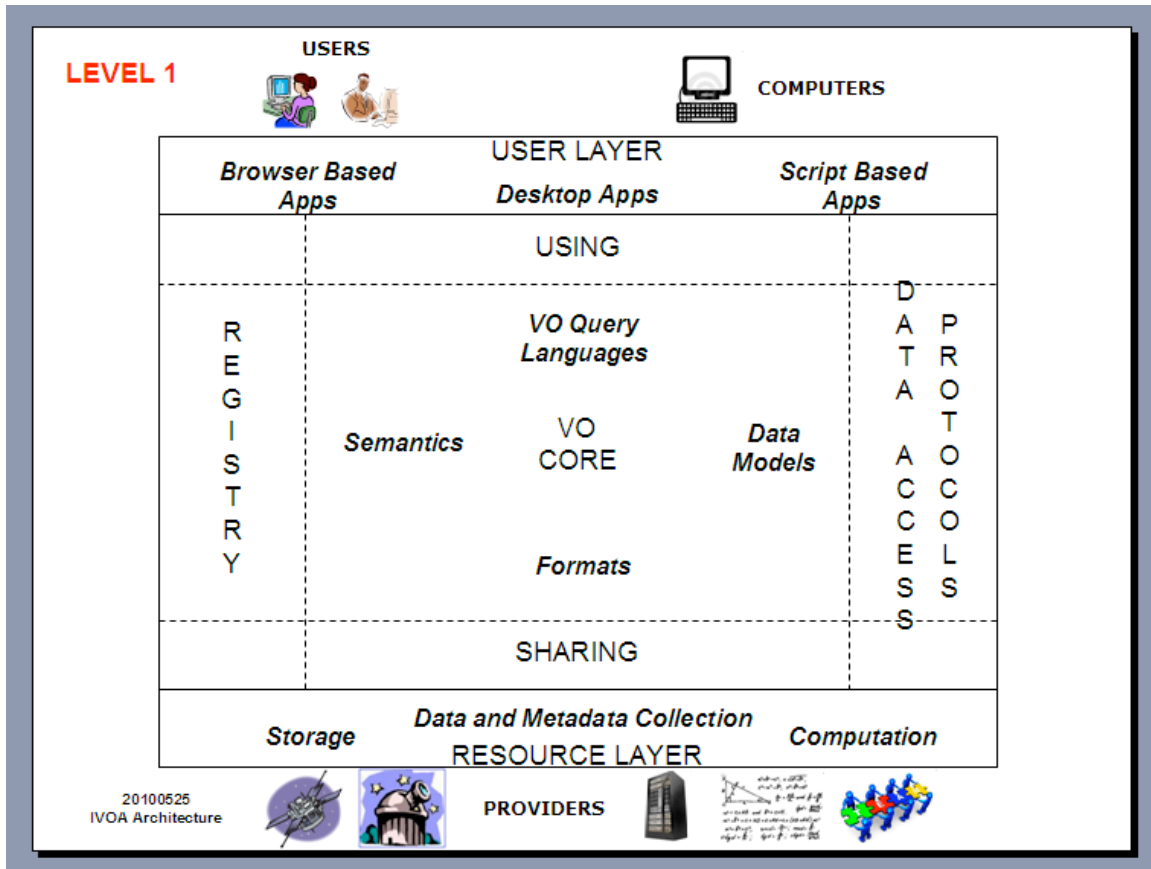


Figure 2: IVOA Architecture Level 1

Astronomy produces lots of data of many kinds, coming from various sources: science space missions, ground-based telescopes, theoretical models,

compilation of results, etc. These data are usually managed by large data centres or smaller teams. These *providers* provide the scientific community with data and / or computing services through the Internet. The resources provided can be data collections (images, spectra, catalogues, time series, theoretical models, etc.) with their associated descriptive metadata and access services, storage, and computing services, allowing end users and remote computers to process and store the data close to the data collection avoiding unnecessary large data transfer. This is the *Resource Layer*.

The “consumers” of these data and computing services, be it individual end user astronomers, research teams or computer systems, interact with the *User Layer*. These interactions can be through browser-based applications in a typical web browser, standalone desktop applications or scriptable applications that can be used in automatic and batch modes by a computer.

The *Virtual Observatory* is the necessary “middle layer” framework which connects the Resource Layer to the User Layer in a seamless and transparent manner. Like the web which enables end users and machines to access documents and services transparently wherever and however they are stored, the VO enables the astronomical scientific community to access astronomical resources wherever and however they are stored by the astronomical data and services providers.

The VO provides a technical framework for the *providers* and the users to share their data and services (“Sharing”).

Registries function as the “yellow pages” of the VO, collecting metadata about data resources and information services into a queryable database. Like the VO resources and services themselves, the registry is also distributed. Replicas exist around the network, both for redundancy and for more specialized collections. Access to data and metadata collection is done through Data Access Protocols, which allow a uniform way of getting data and metadata from various different providers.

To allow these functionalities, the definition of some core astronomy oriented standards (“VO Core”) is necessary. In particular, defining common formats and data models, using common semantics is required to have a uniform and common description of astronomical datasets so they can become interoperable and are queryable through standard query language to enable cross analysis amongst various datasets.

Additional standards are required within the User Layer to enable user authentication to proprietary datasets and storage elements as well as interoperability amongst VO applications (“Using”).

2.3 IVOA Architecture Level 2

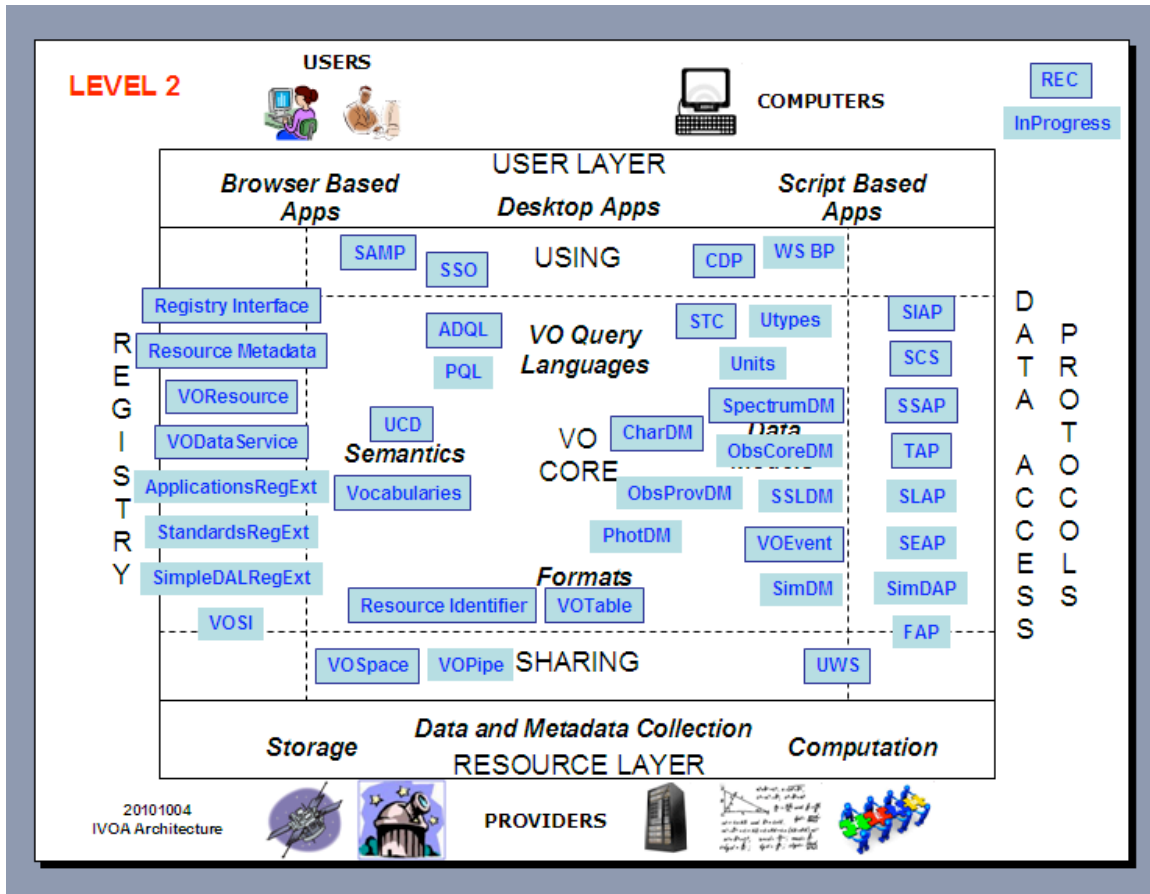


Figure 3: IVOA Architecture Level 2

Level 2 of the IVOA Architecture is similar to Level 1, but adds all the IVOA standards in their corresponding area. Some standards have already been approved and recommended (blue box with an outer line) while others are still being defined and worked out (blue box without an outer line) so they can become a standard.

Note that this list (and standard status) will naturally evolve with time. More standards will become approved and recommended. Additionally, as driven by scientific use cases, new standards might be required and added to the figure.

3 IVOA Roadmap for the Upcoming Year

3.1 TCG general

One of the main tasks for the TCG for the upcoming year will be to write an IVOA Note about the IVOA Architecture, following the agreements reached during the Victoria interoperability meeting which resulted in the IVOA Architecture diagram. This document should describe the various Architecture Levels (0, 1 and 2), and include a summary description of each existing and upcoming IVOA standards, indicating where this standard fits into the IVOA Architecture and its inter-dependencies with other IVOA standards.

It has also been agreed that all new IVOA standards should include a general description of the standard, its position within the IVOA Architecture and its inter-dependencies with other IVOA standards. This description should be written in a way that it can be understood by anybody in the astronomy field, without the need to be a VO expert. The TCG should also discuss and decide if this change should be retrospectively introduced in all existing IVOA recommended standards (without going through the full recommendation process of course).

As described earlier on, in close collaboration with the Committee on Science Priorities, special emphasis and effort will be given to IVOA standards required for the implementation of the first priority science cases. In particular, that means completing ObsCoreDM (Observation Core Data Model) and PhotDM (Photometry Data Model), for the ObsTAP and SED builder science cases.

Building on the successful TCG Face to Face meeting in Victoria, it is planned to organize dedicated TCG F2F meetings of 1-2 days, prior to the upcoming IVOA interoperability meetings.

3.2 Applications WG

The Applications WG is entering the “operational” mode, with monitoring the implementation of new VO tools. Close coordination will be required with the Science Priorities Committee; in particular, reviewing the implementation of the priority science cases (ObsTAP, SED builder, search by list of sources and by class type, VO Portal) and dedicated sessions will be organized in the upcoming IVOA interoperability meetings.

SAMP is being adopted widely by VO (and non-VO) applications, proof of its success and usefulness. Based on the implementation feedback, minor changes are required and will be addressed in SAMP 1.2 that should go into the REC process with the following schedule:

WBS	Task Name	Duration	Start	End	2009				2010				2011							
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1	[Apps] SAMP 1.2	17.86 mons	Wed 01/07/09	Tue 07/12/10	01/07															
1.1	in Working Group	13.95 mons	Wed 01/07/09	Fri 13/08/10	01/07															
1.1.1	Work within WG	13 mons	Wed 01/07/09	Fri 16/07/10	01/07															
1.1.2	SAMP 1.2 WD	0 days	Mon 19/07/10	Mon 19/07/10					19/07											
1.1.3	Final review within WG	20 days	Mon 19/07/10	Fri 13/08/10					19/07											
1.2	SAMP 1.2 for PR	0 days	Mon 13/09/10	Mon 13/09/10					13/09											
1.3	RFC period within interop	1 mon	Mon 27/09/10	Mon 25/10/10					27/09											
1.4	TCG review	1 mon	Tue 26/10/10	Tue 23/11/10					26/10											
1.5	PR submission to Exec	0 days	Tue 23/11/10	Tue 23/11/10					23/11											
1.6	IVOA Exec review	2 wks	Wed 24/11/10	Tue 07/12/10					24/11											
1.7	REC SAMP 1.2	0 days	Tue 07/12/10	Tue 07/12/10					07/12											

3.3 Data Access Layer WG

As said earlier, the VOQL WG has now been merged with the DAL WG, which hence “inherits” the potential maintenance and evolution of ADQL (although nothing is foreseen in the coming year). Many standards are being worked out in the DAL WG, and following are the main activities to be dealt with in the coming year, many of them in close collaboration with the DM WG.

The Simple Line Access Protocol (SLAP), together with the SSLDM (Simple Spectral Line Data Model) is now going through the REC process and should become a recommendation in 2010, as per the following schedule:

WBS	Task Name	Duration	Start	End	2004		2005		2006		2007		2008		2009		2010		2011		2012	
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
2	[DAL] SLAP	72.38 mons	Fri 01/10/04	Thu 14/10/10	01/10																	
2.1	in Working Group	56.95 mons	Fri 01/10/04	Fri 17/07/09	01/10																	
2.1.1	Work within WG	1152 days	Fri 01/10/04	Mon 18/05/09	01/10																	
2.1.2	SLAP WD 0.1	0 days	Mon 03/10/05	Mon 03/10/05					03/10													
2.1.3	SLAP WD 0.5	0 days	Wed 17/05/06	Wed 17/05/06					17/05													
2.1.4	SLAP WD 0.6	0 days	Wed 09/05/07	Wed 09/05/07					09/05													
2.1.5	SLAP WD 0.7 with AMLDM 0.7	0 days	Wed 15/10/08	Wed 15/10/08										15/10								
2.1.6	SLAP WD 0.9 with SSLDM 0.9	0 days	Tue 19/05/09	Tue 19/05/09										19/05								
2.1.7	Final review within WG	44 days	Tue 19/05/09	Fri 17/07/09										19/05								
2.2	SLAP 1.0 for PR	0 days	Fri 17/07/09	Fri 17/07/09										17/07								
2.3	RFC period within interop	42 days	Mon 20/07/09	Tue 15/09/09										20/07								
2.4	SLAP 1.0 for TCG Review	0 days	Fri 16/10/09	Fri 16/10/09										16/10								
2.5	TCG review	2 mons	Wed 12/05/10	Thu 08/07/10																		
2.6	PR submission to Exec	0 days	Fri 01/10/10	Fri 01/10/10																		
2.7	IVOA Exec review	2 wks	Fri 01/10/10	Thu 14/10/10																		
2.8	REC SLAP	0 days	Thu 14/10/10	Thu 14/10/10																		

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TAP has now become a recommendation. It still remains to define the TAP VOResource Extension Schema that should be completed around Q4 2010.

As implementation feedback, some inconsistencies have been found between SSAP and SpectrumDM. That has been resolved. The SSAP v1.1 maintenance document is complete and does not require an updated SpectrumDM; all that remains is a discussion and decision whether this update needs to go through the formal REC process.

With the work going on about the PhotDM (Photometry Data Model), and its potential use within SSAP, more updates might be required for SSAP (towards v1.2 or 2.0) and SpectrumDM (towards v1.1) to support Photometry and Filter Services.

As the PhotDM (and associated changes on SSAP/SpectrumDM) are part of the priority science case SED builder, the aim would be to determine the scope of changes around the May 2011 IVOA interoperability meeting and determine if PhotDM will be supported in SSAP 1.2 or 2.0 as per the following schedule:

WBS	Task Name	Duration	Start	End	2010				2011				2012				2013	
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
10	[DAL] SSAP 1.2 or 2.0 (PhotDM support)	13.71 mons	Mon 03/05/10	Wed 08/06/11														
10.1	In Working Group	10.76 mons	Mon 03/05/10	Mon 14/03/11														
10.1.1	Work within WG	10 mons	Mon 03/05/10	Fri 18/02/11														
10.1.2	SSAP 1.2 or 2.0 WD	0 days	Fri 01/10/10	Fri 01/10/10														
10.1.3	SSAP 1.2 or 2.0 WD	0 days	Tue 15/02/11	Tue 15/02/11														
10.1.4	Final review within WG	20 days	Tue 15/02/11	Mon 14/03/11														
10.2	SSAP 1.2 or 2.0 for PR	0 days	Mon 14/03/11	Mon 14/03/11														
10.3	RFC period within interop	1 mon	Tue 29/03/11	Tue 26/04/11														
10.4	TCG review	1 mon	Wed 27/04/11	Wed 25/05/11														
10.5	PR submission to Exec	0 days	Wed 25/05/11	Wed 25/05/11														
10.6	IVOA Exec review	2 wks	Thu 26/05/11	Wed 08/06/11														
10.7	REC SSAP 1.2 or 2.0 (PhotDM support)	0 days	Wed 08/06/11	Wed 08/06/11														

In addition, PQL WD 0.2 was published 20th May 2009 and should go through the standard review and discussion within the DAL WG. It is important that we make progress leading up to and at the November Interop and so the discussion should be stimulated now that TAP is an IVOA Recommendation. The goal is to finish WD-PQL-1.0 by the end of the November 2010 Interop so that implementations may be done in early 2011 and the REC process can proceed as per the following schedule:

WBS	Task Name	Duration	Start	End	2009				2010				2011				2012	
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
4	[DAL] PQL	28.76 mons	Mon 02/02/09	Thu 26/05/11														
4.1	In Working Group	25.81 mons	Mon 02/02/09	Tue 01/03/11														
4.1.1	Work within WG	24.86 mons	Mon 02/02/09	Tue 01/02/11														
4.1.2	PQL WD 0.1	0 days	Tue 17/02/09	Tue 17/02/09														
4.1.3	PQL WD 0.2	0 days	Fri 22/05/09	Fri 22/05/09														
4.1.4	PQL WD 0.5	0 days	Mon 15/11/10	Mon 15/11/10														
4.1.5	PQL WD 1.0	0 days	Mon 17/01/11	Mon 17/01/11														
4.1.6	Final review within WG	20 days	Tue 01/02/11	Tue 01/03/11														
4.2	PQL for PR	0 days	Tue 01/03/11	Tue 01/03/11														
4.3	RFC period within interop	1 mon	Tue 15/03/11	Wed 13/04/11														
4.4	TCG review	1 mon	Wed 13/04/11	Thu 12/05/11														
4.5	PR submission to Exec	0 days	Thu 12/05/11	Thu 12/05/11														
4.6	IVOA Exec review	2 wks	Thu 12/05/11	Thu 26/05/11														
4.7	REC PQL	0 days	Thu 26/05/11	Thu 26/05/11														

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Work on SIAP v2.0 has taken place, with a first WD released in November 2009 and its associated discussions. An updated WD is expected in November 2010 so it can be discussed at the Nara Interoperability meeting where follow up actions and plans will be reviewed. A tentative schedule with a RFC starting after the May 2011 interoperability meeting could be the following:

WBS	Task Name	Duration	Start	End	2004		2005		2006		2007		2008		2009		2010		2011		2012		2013	
					H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1
5	[DAL] SIAP 2.0	83.9 mons	Wed 01/09/04	Thu 18/08/11																				
5.1	in Working Group	80.95 mons	Wed 01/09/04	Tue 24/05/11	01/09																			
5.1.1	Work within WG	80 mons	Wed 01/09/04	Tue 26/04/11	01/09																			
5.1.2	SIAP 2.0 WD	0 days	Wed 04/11/09	Wed 04/11/09																				
5.1.3	SIAP 2.0 WD	0 days	Thu 04/11/10	Thu 04/11/10																				
5.1.4	Final review within WG	20 days	Wed 27/04/11	Tue 24/05/11																				
5.2	SIAP 2.0 for PR	0 days	Tue 24/05/11	Tue 24/05/11																				
5.3	RFC period within interop	1 mon	Wed 08/06/11	Wed 06/07/11																				
5.4	TCG review	1 mon	Thu 07/07/11	Thu 04/08/11																				
5.5	PR submission to Exec	0 days	Thu 04/08/11	Thu 04/08/11																				
5.6	IVOA Exec review	2 wks	Fri 05/08/11	Thu 18/08/11																				
5.7	REC SIAP 2.0	0 days	Thu 18/08/11	Thu 18/08/11																				

Work has also started on the definition on Footprint services in view of a Footprints Access Protocol (FAP). An initial WD is expected in November 2010, prior to the Nara interoperability meeting.

Coordination with the VOEvent WG will be required for the definition of the SEAP (Simple Event Access Protocol) and in particular for the definition of the Simple Light Curve Access Protocol (SLiCAP) or the extension of existing DAL standard (eg SSAP) to support Light Curves.

Coordination with the Theory IG will be required for the definition of the SimDAL (Simulations Data Access Protocol).

Coordination with the Registry WG will be required for the definition of the SimpleDALRegExt (Simple Data Access Layer protocols Registry Extension).

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3.4 Data Model WG

The SSLDM (Simple Spectral Line Data Model), together with the Simple Line Access Protocol (SLAP), is now going through the REC process and should become a recommendation in 2011, as per the following schedule:

WBS	Task Name	Duration	Start	End	2008		2009		2010		2011		2012	
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
3	[DM] SSLDM	25.38 mons	Wed 01/10/08	Thu 14/10/10										
3.1	in Working Group	9.95 mons	Wed 01/10/08	Fri 17/07/09										
3.1.1	Work within WG	164 days	Wed 01/10/08	Sat 16/05/09										
3.1.2	SLAP WD 0.9 with SSLDM 0.9	0 days	Tue 19/05/09	Tue 19/05/09										
3.1.3	Final review within WG	45 days	Mon 18/05/09	Fri 17/07/09										
3.2	SSLDM 1.0 for PR	0 days	Fri 17/07/09	Fri 17/07/09										
3.3	RFC period within interop	9 wks	Mon 20/07/09	Fri 18/09/09										
3.4	SSLDM 1.0 for TCG Review	0 days	Thu 06/05/10	Thu 06/05/10										
3.5	TCG review	2 mons	Wed 12/05/10	Thu 08/07/10										
3.6	PR submission to Exec	0 days	Fri 01/10/10	Fri 01/10/10										
3.7	IVOA Exec review	2 wks	Fri 01/10/10	Thu 14/10/10										
3.8	REC SSLDM	0 days	Thu 14/10/10	Thu 14/10/10										

As implementation feedback, people have discovered some inconsistencies between SSAP and SpectrumDM. That will need to be resolved and new minor updates of both standards might be required. This reconciliation should happen by Q3 2010, including a discussion and decision if both updates need to go through the formal REC process.

ObsTAP is also one of the first priority projects and has been progressing very well over the last year. That includes the definition of the ObsCoreDM (Observation Core Data Model), with a first WD released in June 2010, so it could start its REC process right after the December 2010 IVOA interoperability meeting. A proposed schedule is:

WBS	Task Name	Duration	Start	End	2009		2010		2011		2012		2013	
					H2	H1	H2	H1	H2	H1	H2	H1	H2	
9	[DM] ObsCoreDM	21.67 mons	Fri 01/05/09	Wed 26/01/11										
9.1	in Working Group	18.71 mons	Fri 01/05/09	Mon 01/11/10										
9.1.1	Work within WG	349 days	Fri 01/05/09	Tue 31/08/10										
9.1.2	ObsCoreDM WD	0 days	Tue 15/06/10	Tue 15/06/10										
9.1.3	ObsCoreDM WD	0 days	Tue 05/10/10	Tue 05/10/10										
9.1.4	Final review within WG	20 days	Tue 05/10/10	Mon 01/11/10										
9.2	ObsCoreDM WD for PR	0 days	Mon 01/11/10	Mon 01/11/10										
9.3	RFC period within interop	1 mon	Tue 16/11/10	Tue 14/12/10										
9.4	TCG review	1 mon	Wed 15/12/10	Wed 12/01/11										
9.5	PR submission to Exec	0 days	Wed 12/01/11	Wed 12/01/11										
9.6	IVOA Exec review	2 wks	Thu 13/01/11	Wed 26/01/11										
9.7	REC ObsCoreDM WD	0 days	Wed 26/01/11	Wed 26/01/11										

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The Photometry Data Model (PhotDM and associated changes on SSAP/SpectrumDM) has been identified as being part of the SED Builder priority science case. A first WD has been released in June 2010 and comments are being collected to get an updated version around November 2010. The aim would then be to have PhotDM 1.0 start the REC process after the December 2010 IVOA interoperability meeting as per the following schedule:

WBS	Task Name	Duration	Start	End	2008		2009		2010		2011		2012		2013	
					H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	
10	[DM] PhotDM	35.52 mons	Thu 15/05/08	Wed 23/03/11												
10.1	in Working Group	32.14 mons	Thu 15/05/08	Tue 14/12/10												
10.1.1	Work within WG	655 days	Thu 15/05/08	Tue 16/11/10												
10.1.2	PhotDM WD v0.1	0 days	Mon 07/06/10	Mon 07/06/10						07/06						
10.1.3	PhotDM WD v0.2	0 days	Fri 01/10/10	Fri 01/10/10						01/10						
10.1.4	PhotDM WD v0.3	0 days	Wed 10/11/10	Wed 10/11/10						10/11						
10.1.5	Final review within WG	20 days	Wed 17/11/10	Tue 14/12/10						17/11						
10.2	PhotDM for PR	0 days	Tue 14/12/10	Tue 14/12/10						14/12						
10.3	RFC period within interop	1 mon	Tue 11/01/11	Tue 08/02/11						11/01						
10.4	TCG review	1 mon	Wed 09/02/11	Wed 09/03/11						09/02						
10.5	PR submission to Exec	0 days	Wed 09/03/11	Wed 09/03/11						09/03						
10.6	IVOA Exec review	2 wks	Thu 10/03/11	Wed 23/03/11						10/03						
10.7	REC PhotDM	0 days	Wed 23/03/11	Wed 23/03/11						23/03						

The goal would then be to have implementation of the PhotDM presented at the May 2011 interoperability meeting.

As explained earlier, SpectrumDM would also need to be updated to support PhotDM and the SED builder science use case. Linked with SSAP 1.2 (or 2.0), SpectrumDM1.1 should follow the same schedule, i.e. becoming a REC standard around the May 2011 IVOA interoperability meeting, as per the following schedule:

WBS	Task Name	Duration	Start	End	2010				2011				2012			
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
11	[WG] SpectrumDM 1.1 (PhotDM suppo	13.71 mons	Mon 03/05/10	Wed 08/06/11												
11.1	in Working Group	10.76 mons	Mon 03/05/10	Mon 14/03/11												
11.1.1	Work within WG	10 mons	Mon 03/05/10	Fri 18/02/11												
11.1.2	SpectrumDM 1.1 WD	0 days	Tue 15/02/11	Tue 15/02/11						15/02						
11.1.3	Final review within WG	20 days	Tue 15/02/11	Mon 14/03/11						15/02						
11.2	SpectrumDM 1.1 for PR	0 days	Mon 28/03/11	Mon 28/03/11						28/03						
11.3	RFC period within interop	1 mon	Tue 29/03/11	Tue 26/04/11						29/03						
11.4	TCG review	1 mon	Wed 27/04/11	Wed 25/05/11						27/04						
11.5	PR submission to Exec	0 days	Wed 25/05/11	Wed 25/05/11						25/05						
11.6	IVOA Exec review	2 wks	Thu 26/05/11	Wed 08/06/11						26/05						
11.7	REC SpectrumDM 1.1	0 days	Wed 08/06/11	Wed 08/06/11						08/06						

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As an important building block for all Data Models, two WDs for UTPES have already been produced. Discussions have taken place and more is required to have an updated WD prior to the December 2010 IVOA interoperability meeting, discussion and then a final update to start the REC process in 2011 so it can be completed by the May 2011 interop meeting with the following schedule:

WBS	Task Name	Duration	Start	End	2007		2008		2009		2010		2011		2012		2013	
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
12	[DM] UTPES	47.52 mons	Mon 03/09/07	Wed 29/06/11														
12.1	in Working Group	44.57 mons	Mon 03/09/07	Mon 04/04/11														
12.1.1	Work within WG	911 days	Mon 03/09/07	Mon 28/02/11														
12.1.2	UTYPES WD 0.3	0 days	Fri 22/05/09	Fri 22/05/09														
12.1.3	UTYPES WD 0.5	0 days	Wed 01/12/10	Wed 01/12/10														
12.1.4	UTYPES WD 1.0	0 days	Tue 01/03/11	Tue 01/03/11														
12.1.5	Final review within WG	25 days	Tue 01/03/11	Mon 04/04/11														
12.2	UTYPES for PR	0 days	Mon 04/04/11	Mon 04/04/11														
12.3	RFC period within interop	1 mon	Tue 19/04/11	Tue 17/05/11														
12.4	TCG review	1 mon	Wed 18/05/11	Wed 15/06/11														
12.5	PR submission to Exec	0 days	Wed 15/06/11	Wed 15/06/11														
12.6	IVOA Exec review	2 wks	Thu 16/06/11	Wed 29/06/11														
12.7	REC UTPES	0 days	Wed 29/06/11	Wed 29/06/11														

Provenance will be modeled as a package of the full Observation DM. It will gather finer instrumental and processing provenance descriptions. This will be called ObsProvDM and will be an extension to the more “simple” ObsCoreDM. This will be exposed in a separate WD: WD-ObsDM-Provenance-v0.1 with a first internal draft to be issued at the Nara December 2010 Interop and an expected first WD by the May 2011 Interop. REC schedule still needs to be determined.

Characterization DM will be updated, with a new corrected schema Characterisation.v2.0, developing sensitivity and variability maps, and rationalizing the Utypes list generation. After a review at the Nara December 2010 Interop, it could start its REC process early 2011 as per the following schedule:

WBS	Task Name	Duration	Start	End	2010				2011				2012					
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
15	[DM] CharDM 2.0	19.14 mons	Tue 01/09/09	Wed 16/03/11														
15.1	in Working Group	16.19 mons	Tue 01/09/09	Mon 20/12/10														
15.1.1	Work within WG	320 days	Tue 01/09/09	Mon 22/11/10														
15.1.2	CharDM 2.0 WD v0.1	0 days	Mon 12/10/09	Mon 12/10/09														
15.1.3	CharDM 2.0 WD v0.2	0 days	Mon 01/11/10	Mon 01/11/10														
15.1.4	Final review within WG	20 days	Tue 23/11/10	Mon 20/12/10														
15.2	CharDM 2.0 for PR	0 days	Mon 20/12/10	Mon 20/12/10														
15.3	RFC period within interop	1 mon	Tue 04/01/11	Tue 01/02/11														
15.4	TCG review	1 mon	Wed 02/02/11	Wed 02/03/11														
15.5	PR submission to Exec	0 days	Wed 02/03/11	Wed 02/03/11														
15.6	IVOA Exec review	2 wks	Thu 03/03/11	Wed 16/03/11														
15.7	REC CharDM 2.0	0 days	Wed 16/03/11	Wed 16/03/11														

Work on the definition of the UNITS Data Model had been put on hold within the DM WG due to lack of resources. Hence, it has been decided to transfer the definition of this standard to the Semantics WG. Close coordination between the DM and Semantics WG will still take place for this standard.

Special coordination will have to take place with the Theory IG about the definition of the Simulation Data Model (SimDM).

3.5 Grid and Web Services WG

VO Service Interface (VOSI) 1.0 has entered the Recommendation process, has ended the RFC period. Some modifications to the specifications are required before it can enter the TCG review with the following schedule:

WBS	Task Name	Duration	Start	End	2007		2008		2009		2010		2011		2012		2013
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1
15	[GWS] VOSI	39.81 mons	Mon 01/10/07	Mon 13/12/10													
15.1	in Working Group	31.38 mons	Mon 01/10/07	Thu 08/04/10	01/10												
15.1.1	Work within WG	566 days	Mon 01/10/07	Mon 30/11/09	01/10												
15.1.2	VOSI WD	0 days	Thu 23/10/08	Thu 23/10/08							23/10						
15.1.3	VOSI WD	0 days	Tue 25/08/09	Tue 25/08/09							25/08						
15.1.4	VOSI WD	0 days	Thu 11/03/10	Thu 11/03/10							11/03						
15.1.5	Final review within WG	1 mon	Thu 11/03/10	Thu 08/04/10							11/03						
15.2	VOSI for PR	0 days	Fri 09/04/10	Fri 09/04/10							09/04						
15.3	RFC period within interop	4 mons	Fri 09/04/10	Wed 04/08/10							09/04						
15.4	VOSI for PR	0 days	Mon 01/11/10	Mon 01/11/10							01/11						
15.5	TCG review	1 mon	Mon 01/11/10	Mon 29/11/10							01/11						
15.6	PR submission to Exec	0 days	Mon 29/11/10	Mon 29/11/10							29/11						
15.7	IVOA Exec review	2 wks	Tue 30/11/10	Mon 13/12/10							30/11						
15.8	REC VOSI	0 days	Mon 13/12/10	Mon 13/12/10							13/12						

Web Service Basic Profile has entered the Recommendation Process and the RFC process is ending soon. After an updated version, it should move to the TCG review with the following schedule:

WBS	Task Name	Duration	Start	End	2004		2005		2006		2007		2008		2009		2010		2011		2012		2013
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1
17	[GWS] Web Services Basic Profile v1.0	71.38 mons	Thu 09/12/04	Fri 12/11/10																			
17.1	in Working Group	63.52 mons	Thu 09/12/04	Fri 26/03/10	09/12																		
17.1.1	Work within WG	1294 days	Thu 09/12/04	Fri 29/01/10	09/12																		
17.1.2	Basic Profile WD 0.25	0 days	Wed 26/09/07	Wed 26/09/07																			
17.1.3	Basic Profile WD	0 days	Tue 16/09/08	Tue 16/09/08																			
17.1.4	Basic Profile WD 1.0	0 days	Fri 26/02/10	Fri 26/02/10																			
17.1.5	Final review within WG	1 mon	Fri 26/02/10	Fri 26/03/10																			
17.2	Basic Profile for PR	0 days	Fri 26/03/10	Fri 26/03/10																			
17.3	RFC period within interop	1 mon	Mon 29/03/10	Mon 26/04/10																			
17.4	Basic Profile for TCG Review	0 days	Fri 01/10/10	Fri 01/10/10																			
17.5	TCG review	1 mon	Fri 01/10/10	Fri 29/10/10																			
17.6	PR submission to Exec	0 days	Fri 29/10/10	Fri 29/10/10																			
17.7	IVOA Exec review	2 wks	Mon 01/11/10	Fri 12/11/10																			
17.8	REC WS Basic Profile	0 days	Fri 12/11/10	Fri 12/11/10																			

VOSpace 2.0 has progressed well with an updated WD in March 2010. More changes are required, but VOSpace 2.0 should be able to enter the REC process around mid November as per the following schedule:

WBS	Task Name	Duration	Start	End	2008		2009		2010		2011		2012		2013
					H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	
18	[GWS] VOSpace 2.0	32 mons	Tue 01/07/08	Tue 25/01/11											
18.1	in Working Group	29.29 mons	Tue 01/07/08	Fri 05/11/10	01/07										
18.1.1	Work within WG	28 mons	Tue 01/07/08	Wed 29/09/10	01/07										
18.1.2	VOSpace 2.0 WD	0 days	Fri 15/05/09	Fri 15/05/09											
18.1.3	VOSpace 2.0 WD	0 days	Tue 23/03/10	Tue 23/03/10											
18.1.4	VOSpace 2.0 WD	0 days	Mon 11/10/10	Mon 11/10/10											
18.1.5	Final review within WG	20 days	Mon 11/10/10	Fri 05/11/10											
18.2	VOSpace 2.0 for PR	0 days	Mon 15/11/10	Mon 15/11/10											
18.3	RFC period within interop	1 mon	Mon 15/11/10	Mon 13/12/10											
18.4	TCG review	1 mon	Tue 14/12/10	Tue 11/01/11											
18.5	PR submission to Exec	0 days	Tue 11/01/11	Tue 11/01/11											
18.6	IVOA Exec review	2 wks	Wed 12/01/11	Tue 25/01/11											
18.7	REC VOSpace 2.0	0 days	Tue 25/01/11	Tue 25/01/11											

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VOPipe is a new standard being worked on, with the aim to get the 1st WD early 2011. Planning for the REC process will be discussed at the December 2011 IVOA interoperability meeting.

3.6 Registry WG

We agreed to a clearer and more consistent nomenclature for the Registry standards describing an extension to the VOResource standard for a specific purpose. Hence the following changes:

- VOStandard has now become StandardsRegExt
- VOApplication has now become ApplicationRegExt
- RegSimpleDAL has now become SimpleDALRegExt

StandardsRegExt WD has been published for public review and should be ready to start its REC process in December 2010 as per the following schedule:

WBS	Task Name	Duration	Start	End	2007		2008		2009		2010		2011		2012		2013
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1
21	[Registry] StandardsRegExt	42.9 mons	Mon 03/09/07	Mon 14/02/11													
21.1	in Working Group	39.95 mons	Mon 03/09/07	Thu 18/11/10													
21.1.1	Work within WG	39 mons	Mon 03/09/07	Thu 21/10/10													
21.1.2	StandardsRegExt WD	0 days	Wed 19/05/10	Wed 19/05/10													
21.1.3	StandardsRegExt WD	0 days	Fri 15/10/10	Fri 15/10/10													
21.1.4	Final review within WG	20 days	Fri 22/10/10	Thu 18/11/10													
21.2	StandardsRegExt for PR	0 days	Thu 18/11/10	Thu 18/11/10													
21.3	RFC period within interop	1 mon	Fri 03/12/10	Fri 31/12/10													
21.4	TCG review	1 mon	Mon 03/01/11	Mon 31/01/11													
21.5	PR submission to Exec	0 days	Mon 31/01/11	Mon 31/01/11													
21.6	IVOA Exec review	2 wks	Tue 01/02/11	Mon 14/02/11													
21.7	REC StandardsRegExt	0 days	Mon 14/02/11	Mon 14/02/11													

SimpleDALRegExt has had an internal WD, but some more editing (and adding SLAP extension) is required for a public WD and later on will start its REC process in December 2010 as per the following schedule:

WBS	Task Name	Duration	Start	End	2008		2009		2010		2011		2012		2013		
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	
23	[Registry] SimpleDALRegExt	29.9 mons	Wed 01/10/08	Thu 24/02/11													
23.1	in Working Group	26.95 mons	Wed 01/10/08	Tue 30/11/10													
23.1.1	Work within WG	26 mons	Wed 01/10/08	Tue 02/11/10													
23.1.2	SimpleDALRegExt WD	0 days	Fri 15/10/10	Fri 15/10/10													
23.1.3	Final review within WG	20 days	Wed 03/11/10	Tue 30/11/10													
23.2	SimpleDALRegExt WD for PR	0 days	Tue 30/11/10	Tue 30/11/10													
23.3	RFC period within interop	1 mon	Wed 15/12/10	Wed 12/01/11													
23.4	TCG review	1 mon	Thu 13/01/11	Thu 10/02/11													
23.5	PR submission to Exec	0 days	Thu 10/02/11	Thu 10/02/11													
23.6	IVOA Exec review	2 wks	Fri 11/02/11	Thu 24/02/11													
23.7	REC SimpleDALRegExt	0 days	Thu 24/02/11	Thu 24/02/11													

For the time being, it has been decided to put the definition of the ApplicationRegExt on hold, as this was not felt to be high priority.

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The Registry WG is also entering a more operational mode and its focus should gradually change from defining standards towards coordinating and monitoring registry issues, in particular all the questions relevant to the curation of VO Resources, which is critical for the global quality of the VO.

In this context, the work done on the DAL Validators needs to be continued, in particular fixing bugs within the SSAP and SLAP validators, as well as improving them to cover Utypes validation. Call for open collaboration has been made at the Victoria IVOA Interoperability meeting for other IVOA partners to participate to this IVOA-wide effort.

In addition, monitoring of the validity of resources within the IVOA registries is very useful and should be continued, with reporting and strong encouragement towards the services providers to bring their resources to a fully compliant and reliable state. Usage of the VO Resource ValidationLevel parameter to indicate the level of validity of a VO Resource remains a difficult discussion, but must be pursued.

3.7 Semantics WG

As indicated earlier on, the UNITS Data Model has been transferred from the DM WG to the Semantics WG. A first draft had been produced in May 2009, but work needs to resume actively as the UNITS DM is one of the critical and long awaited VO Core components, to be used by most of other IVOA standards. Coordination with the other WGs will take place.

An updated Units DM WD will be published before the Nara interoperability meeting, but at this stage it is still difficult to build any tentative schedule for the UNITS DM, as this will depend on the manpower involved.

As part of a first priority science use case (search by target list and by class type), the TCG has identified the need to define an Ontology Standard, which naturally comes under the auspices of the Semantics WG. The exact content of this new Ontology standard of astronomical object types still needs to be defined in details. It is expected to adopt the same approach as for the UCD standard, ie the standard will define the process of defining this ontology (including maintenance and updates) and the ontology itself will be a separate document.

The Ontology Standard will benefit from the development of the ontology of astronomical object types and the two related IVOA notes "Ontology of Astronomical Object Types 1.3" and "Ontology of Astronomical Object Types Use Cases 1.1".

Developments on the new UCD1+ v1.3 document have been mostly idle since the last Strasbourg interoperability meeting. Most of the time has been spent upgrading the existing web service, and performing checks on existing implementations of UCD in existing services. The updated schedule for recommendation is as follows:

WBS	Task Name	Duration	Start	End	2007		2008		2009		2010		2011		2012		2013
					H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	
24	[Semantics] UCD 1+ v1.3	45 mons	Tue 01/05/07	Mon 27/12/10													
24.1	in Working Group	42.38 mons	Tue 01/05/07	Mon 11/10/10													
24.1.1	Work within WG	41 mons	Tue 01/05/07	Tue 31/08/10													
24.1.2	UCD 1+ WD v1.3	0 days	Mon 20/09/10	Mon 20/09/10													
24.1.3	Final review within WG	16 days	Mon 20/09/10	Mon 11/10/10													
24.2	UCD 1+ v1.3 for PR	0 days	Mon 11/10/10	Mon 11/10/10													
24.3	RFC period within interop	5 wks	Tue 12/10/10	Mon 15/11/10													
24.4	TCG review	4 wks	Tue 16/11/10	Mon 13/12/10													
24.5	PR submission to Exec	0 days	Mon 13/12/10	Mon 13/12/10													
24.6	IVOA Exec review	2 wks	Tue 14/12/10	Mon 27/12/10													
24.7	REC UCD 1+ v1.3	0 days	Mon 27/12/10	Mon 27/12/10													

3.8 VOEvent WG

Work has continued towards VOEvent 2.0 and a 1st WD is expected soon after the summer for discussion before and during the December IVOA interoperability meeting which should then result in the WD to be ready for RFC. The REC process could then start around mid December 2010 as per the following schedule:

WBS	Task Name	Duration	Start	End	2007		2008		2009		2010		2011		2012		2013	
					H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	
24	[VOEvent] VOEvent2.0	44.48 mons	Mon 03/09/07	Thu 31/03/11														
24.1	in Working Group	42 mons	Mon 03/09/07	Tue 18/01/11														
24.1.1	Work within WG	41 mons	Mon 03/09/07	Mon 20/12/10														
24.1.2	VOEvent 2.0 WD	0 days	Fri 01/10/10	Fri 01/10/10														
24.1.3	VOEvent 2.0 WD	0 days	Wed 15/12/10	Wed 15/12/10														
24.1.4	Final review within VOEvent WG	1 mon	Tue 21/12/10	Tue 18/01/11														
24.2	VOEvent 2.0 WD for PR	0 days	Tue 18/01/11	Tue 18/01/11														
24.3	RFC period within interop	1 mon	Wed 19/01/11	Wed 16/02/11														
24.4	TCG review	1 mon	Thu 17/02/11	Thu 17/03/11														
24.5	PR submission to Exec	0 days	Thu 17/03/11	Thu 17/03/11														
24.6	IVOA Exec review	2 wks	Fri 18/03/11	Thu 31/03/11														
24.7	REC VOEvent2.0	0 days	Thu 31/03/11	Thu 31/03/11														

The definition of the Simple Event Access Protocol (SEAP) could start soon after VOEvent 2.0 has entered its REC process. This work should be coordinated with the DAL WG.

Similarly, the definition of VOEventStream could start in parallel with SEAP in close coordination with the Registry WG.'

Exact schedules for both standards will be worked out during the upcoming year.

Early discussions have taken place within the VOEvent WG to create a Simple Light Curve Access Protocol (SLiCAP). Close coordination will be required within the TCG and with the DAL WG in particular, to decide the best approach between creating a new standard or extending the functionalities of an existing one (e.g. support to light curves within SSAP).

3.9 Data Curation and Preservation IG

Regular reports and discussions about Data Curation and Preservation remain important during the IVOA interoperability meetings.

In particular, there is great interest in having a closer collaboration between the data providers and the journal publishers for data capture and linking. The newly nominated chair of the DataCP IG should be able to play a key role in this context.

The IG and members of the TCG have been engaged in discussions on how to best publish and cite IVOA standards in the literature. The general consensus is that the best way to accomplish this is to have the IVOA Document Coordinator submit appropriate versions of the standards to the arXiv as well as ADS upon their online publications. Submitting IVOA standard documents to the arXiv ensures wide dissemination of this content, provides a simple and well-established way for users to cite the standard, and ensures archival of prior document versions. Submitting the final version of a recommendation to the ADS provides the proper visibility to the "copy of record" for the standard, as well as a way to track its citations and use.

3.10 Theory IG

Extensive discussions have taken place in the Theory IG in the last year (in particular many Theory IG sessions and extra meetings at the May 2010 IVOA interoperability meeting in Victoria), which have led to an agreement on the roadmap forward. More details can be found in the corresponding presentation during the plenary closing session at:

http://www.ivoa.net/internal/IVOA/PlenarySessionsMay2010/TIG_closing.ppt

The efforts are now split into three parts:

1. The Simulation Data Model (SimDM) within the Theory IG should lead to a 1st WD, after which it will be passed to the DM WG to follow its REC process as per the following schedule:

WBS	Task Name	Duration	Start	End	2005		2006		2007		2008		2009		2010		2011		2012	
					H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
7	[DM] SimDM	63.19 mons	Mon 03/04/06	Mon 30/05/11																
7.1	in Theory Interest Group	51.86 mons	Mon 03/04/06	Wed 30/06/10																
7.1.1	Discussion about SNAP	503 days	Mon 03/04/06	Tue 01/04/08																
7.1.2	Split SNAP into SimDB, SimDAP	0 mons	Tue 01/04/08	Tue 01/04/08																
7.1.3	Define PR track and tiger team fo	0 days	Fri 01/08/08	Fri 01/08/08																
7.1.4	SimDB v0.1 Technical Note	0 days	Fri 01/08/08	Fri 01/08/08																
7.1.5	Discussion within IG	500 days	Fri 01/08/08	Wed 30/06/10																
7.1.6	Agree SimDM Roadmap	0 days	Wed 19/05/10	Wed 19/05/10																
7.1.7	SimDM WD	0 days	Wed 30/06/10	Wed 30/06/10																
7.2	in Working Group	11.38 mons	Wed 30/06/10	Mon 30/05/11																
7.2.1	Work within WG	239 days	Wed 30/06/10	Mon 30/05/11																
7.2.2	SimDM WD	0 days	Mon 01/11/10	Mon 01/11/10																
7.2.3	Final review within WG	30 days	Mon 01/11/10	Fri 10/12/10																
7.3	SimDM WD for PR	0 days	Fri 10/12/10	Fri 10/12/10																
7.4	RFC period within interop	1 mon	Mon 13/12/10	Mon 10/01/11																
7.5	TCG review	1 mon	Tue 11/01/11	Tue 08/02/11																
7.6	PR submission to Exec	0 days	Tue 08/02/11	Tue 08/02/11																
7.7	IVOA Exec review	2 wks	Wed 09/02/11	Tue 22/02/11																
7.8	REC SimDB	0 days	Tue 22/02/11	Tue 22/02/11																

2. The Simulation Data Access Layer (SimDAL). It now includes the previously named SimDAP and S3 standards. Significant work still needs to be done in this context, in close collaboration with the DAL WG. A more detailed schedule, including REC process, will be discussed at the December 2010 IVOA Interoperability meeting. It was agreed in Victoria to have only one access protocol to cover all aspects of theoretical products. SimDAP/S3 convergence issues will be discussed during an intermediate meeting schedule on 16 and 17th of September in Strasbourg
3. The Simulation Data Base (SimDB) : SimDB is a specification that defines the interface to a database containing metadata describing simulations. To this end it contains two main parts, one is a model for the metadata (the so-called Simulation Data Model, see above), the other a protocol for interacting with the database (TAP-like services).

4 Potential discussions required across WGs/IGs

This section introduces specific topics that will require particular attention from the TCG in the coming year. They will be regularly reviewed in the context of the TCG meetings / teleconferences and should be reported upon in the technical assessment and roadmap next year.

4.1 General

Various items have already been mentioned in earlier sections but are listed here for complete reference:

- Writing of the IVOA Architecture document
- DAL Services Validators
- Utypes and Units standard
- SLiCAP or extension of SSAP to support Light Curves
- Interdependencies of Theory related standards (SimDB, SimDM and SimDAL) with other existing IVOA standards
- Implementation of the first priority science case (ObsTAP, SED Builder, search by target list and object type)
- Seek more systematically implementation feedback for each standard within each WG.

4.2 Migration of the IVOA Wiki system to VAO

The current IVOA wiki had been hosted by ESO since the beginning of the IVOA, but has now been recently migrated under the responsibility of the VAO project at Caltech. A new VAO person has taken up the role of the IVOA Document Coordinator. The TCG should monitor this migration and check that all TCG related web pages have been correctly migrated.

Moreover, we should check that the important performance issues that have been experienced during the last year in the IVOA wiki system (e.g. editing taking more than several minutes or even being impossible due to wiki server time out) have been resolved with this migration.

References

[1] C.Arviset, R.Williams, S.Gaudet *Charter for the IVOA TCG*
<http://www.ivoa.net/Documents/Notes/TCG-Charter/>

[2] IVOA TCG web pages
<http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/IvoaTCG>

[3] R. Hanisch, *IVOA Document Standards Process*,
<http://www.ivoa.net/Documents/DocStd/20100413/>

Annex A: List of existing IVOA standards as of October 2010

For global reference, here is the list in chronological order of all existing RECOMMENDED IVOA standards.

More details can be found on the IVOA Document pages at:

<http://www.ivoa.net/Documents/>

Standards	WG	Date	Comments
2003			
IVOA Document Standards v1.0	Standards & Process Committee	October. 2003	IVOA Doc Std v1.2 in 2010
2004			
VOTable v1.10 VOTable Format Definition	VOTable	August 2004	VOTable v1.2 in 2009
2005			
UCD v1.10 An IVOA Standard for Unified Content Descriptors	Semantics	August 2005	
2006			
Maintenance of the list of UCD words v1.20	Semantics	May 2006	
VOEvent v1.11 Sky Event Reporting Metadata	VOEvent	November 2006	
2007			
Standards	WG	Date	Comments
IVOA Identifiers v1.12	Registry	March 2007	
Resource Metadata for the Virtual Observatory v1.12	Registry	March 2007	
UCD 1+ v1.23 The UCD1+ controlled vocabulary	Semantics	April 2007	UCD 1+ v1.3 expected in 2011
STC v1.33 Space-Time Coordinate Metadata for the VO	DM	October 2007	
SpectraDM v1.01 Spectral Data Model	DM	October 2007	

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2008			
Standards	WG	Date	Comments
SSO v1.03 Single-Sign-On Profile: Authentication Mechanisms	GWS	January 2008	
VOSpace v1.02 VOSpace service specification	GWS	January 2008	VOSpace v1.15 in September 2009
VOResource v1.03 VOResource: an XML Encoding Schema for Resource Metadata	Registry	February 2008	
SCS v1.03 Simple Cone Search	DAL	February 2008	
SSAP v1.04 Simple Spectra Access Protocol	DAL	February 2008	
CharDM v1.13 Data Model for Astronomical DataSet Characterization	DM	March 2008	
ADQL v2.0 Astronomical Data Query Language	VOQL	October 2008	
2009			
Standards	WG	Date	Comments
SAMP 1.11 Simple Application Messaging Protocol	Apps	April 2009	SAMP 1.2 is expected late 2010
Vocabularies 1.16	Semantics	September 2009	
VOSpace 1.5	GWS	September 2009	Update from VOSpace 1.0
Registry Interface 1.01	Registry	September 2009	
SIAP 1.0 Simple Image Access Protocol	DAL	November 2009	
VOTable v1.2 VOTable Format Definition	VOTABLE	November 2009	Update from VOTable 1.10
CDP 1.0 Credential Delegation Protocol	GWS	November 2009	
2010			
Standards	WG	Date	Comments
TAP 1.0 Table Access Protocol	DAL	February 2010	
IVOA Document Standards v1.2	Standards & Process Committee	March 2010	Update from IVOA Document Standards v1.0
UWS 1.0 Universal Worker Service	GWS		
VODataService 1.1	Registry		

Annex B: List of IVOA standards in development as of October 2010

More details can be found on the IVOA Document pages at:

<http://www.ivoa.net/Documents/>

Standards	WG	Date	Comments
2010 (RFC started and later)			
SSLDM 1.0 Simple Spectra Line DM	DM		TCG Review
SLAP 1.0 Simple Line Access Protocol	DAL		TCG Review
VOSI 1.0 IVOA Support Interface	GWS		Updates required after RFC
WS BP 1.0 Web Service Basic Profile	GWS		Updates required after RFC
SAMP 1.2 Simple Application Messaging Protocol	Apps		Minor updates from SAMP 1.11

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2011 (in progress)			
SIAP 2.0 Simple Image Access Protocol	DAL		Update from SIAP 1.0
SSAP 1.1 Simple Spectra Access Protocol	DAL		Update from SSAP 1.04
Footprint Access Protocol	DAL		
PQL 1.0 Parameter Query Language	DAL / VOQL ?		
ObsCoreDM Observation Core DM	DM		
ObsProvDM Observation and Provenance DM	DM		
SpectrumDM 1.1	DM		Update from SpectrumDM 1.03
CharDM 2.0 Characterization DM	DM		Update from CharDM 1.0
PhotDM Photometry DM	DM		
UTYPES DM	DM		
UNITS	DM		
VOSpace 2.0	GWS		Update from VOSpace 1.15
VOPipe	GWS		
StandardRegExt	Registry		
SimpleDALRegExt	Registry		
UCD 1+ 1.3	Semantics		Update from UCD 1+ 1.23
Ontology	Semantics		
VOEvent 2.0	VOEvent		
SEAP 1.0 Simple Event Access Protocol	VOEvent / DAL ?		
SimDM Simulation DM	Theory / DM ?		
SimDAL Simulation Data Access Layer	Theory / DAL ?		