

# EURO-VO Facility Centre Roadmap

*June 9, 2006*

Paolo Padovani, Matteo Guainazzi, C. Arviset, M. Dolensky, P. Osuna

## **The EURO-VO Facility Centre**

The European Virtual Observatory (EURO-VO) Project builds on the research and development experience gained within the Astrophysical Virtual Observatory Project (AVO), in coordination with the European astronomical infrastructure networks OPTICON and RADIONET, to make the Virtual Observatory a European reality. EURO-VO seeks to obtain its objectives by establishing three new interlinked structures: 1. the Data Centre Alliance (DCA), the Technology Centre (VOTC), and the Facility Centre (VOFC).

The VOFC is an operational organization, using distributed resources, that provides the EURO-VO with a persistent, centralized registry for resources, standards and certification mechanisms as well as community support for VO technology take-up and dissemination and scientific program support using VO technologies and resources. The VOFC will provide a “public face” to the EURO-VO. Through outreach, support of VO-enabled science projects in the community, workshops and schools, the VOFC will represent a central support structure to facilitate the broad take-up of VO tools by the community. The VOFC will also support the EURO-VO Science Advisory Committee (SAC) to ensure appropriate and effective scientific guidance from the community of leading researchers outside the mainstream VO projects. The SAC will provide an up-to-date stream of high-level science requirements to the EURO-VO. The VOFC will further provide central services to the DCA for resource registry, metadata standards and EUROVO access. The resources that form the VOFC will be contributed primarily by ESO and ESA.

The purpose of this document is to detail the FC tasks and provide an FC roadmap. Note that on the technical side this will need to be tied to the latest IVOA roadmap (<http://www.ivoa.net/Documents/latest/RoadMap-2006.html>).

## **The EURO-VO Facility Centre Tasks**

### *EURO-VO Science Advisory Committee (SAC)*

The composition of the EURO-VO SAC has been finalised (details at <http://www.euro-vo.org/twiki/bin/view/Fc/ScienceAdvisoryCommittee>). The first SAC meeting was held on April 27 – 28 at ESO, Garching (see

<http://www.euro-vo.org/twiki/bin/view/Fc/SacMeeting01>). The date of the second meeting, to be held at ESRIN in Frascati, has been set to November 22. The work the SAC is supposed to do has been laid down. We expect the SAC to meet approximately twice a year and continue to provide feedback to the project. By 2009 we will need to select a new SAC.

### *IAU VO General Assembly and Special Session*

The FC is coordinating the EURO-VO participation to the IAU GA in Prague, August 14 – 25. An email has been sent to the EURO-VO projects, which will be at the IAU requesting input. A EURO-VO brochure will also be prepared and a EURO-VO demo will be put together. The idea is to have a couple of simple science cases to showcase the EURO-VO tools. Also, we will be using the VO “recipes” on the EURO-VO Web pages (<http://www.euro-vo.org/pub/fc/recipes.html>; see also below) for astronomers who are totally unfamiliar with VO tools.

### *EURO-VO FC VO-science support*

A key point to facilitate the use of VO tools for astronomy projects, vital for the success of the EURO-VO and the VO in general, is the allocation of grants, similarly to what the NVO has done (<http://www.us-vo.org/news/story.cfm?ID=29>). We believe that ESO and ESA should join forces and go ahead with this as soon as possible, aiming at January 2007 for a call for proposals. Note that the SAC has also stressed the importance of this and will recommend some ‘science verification’ projects to use and test VO tools.

### *EURO-VO FC Scientific Workshops*

The FC will organize science-oriented workshops, with the following goals:

- disseminate the knowledge of VO application to the astronomical community;
- support the development of specific research projects, which are based on the VO concept and VO tools;
- ease the set-up of VO data servers, and their inclusion in the EURO-VO registry;
- provide a platform of discussion, feedback and interchange of ideas between the astronomical community "at large", the SAC, and the VO application developers.

The main focus of these workshops shall be on practical "hands-on" sessions, where the participants will have the possibility of (and will be actually warmly encouraged to) carrying out their own research projects. In order to achieve an

optimal interaction between "external" astronomers, and "VO" astronomers and engineers, workshops will be able to accept only a pre-established number of participants. This number will be mainly dictated by the hardware facilities and wo/manpower support available during the workshops. One could also think of organising this at a national level, with the support of the relevant SAC member(s). Again, the SAC was very supportive of this idea and there was a lot of discussion about this topic at the first meeting.

We suggest the first of such workshops to be held in coincidence with the second SAC meeting (November 2006). The frequency of such workshops could be once a year (or more in the case of national workshops).

### EURO-VO FC Technical Workshops

The EURO-VO FC should be responsible for the organisation of Technical Workshops. The aim of these technical workshops will be:

- to ensure the dissemination of technical knowledge necessary to implement VO-endorsed standards
- to allow implementers to see real VO applications working from inside
- to serve as a forum for technicians to interchange views on design, implementation, and whichever technical issues that could be fed back to the EURO-VO and IVOA consortiums.

Technical workshops should be organised once a year by one of the FC components, in coordination with the EURO-VO DCA and TC. The first one was held June 27 – July 1 2005 at ESO, Garching. The next one could be held at ESA early 2007 (say March).

### EURO-VO FC VO science community "outreach"

One of the main tasks that the FC will have to face will be the promotion of VO capabilities in the astronomical community at large. Ideally, one should attract the attention of the "average astronomer" to the existing VO tools and interoperability capabilities, and stimulate their usage, the periodic consultation of the EURO-VO web page, and the participation to scientific and/or technical workshops. At the same time, it is crucial to give prompt feedback to the community of any important advancement VO tools will achieve, as well as of any VO-based scientific results, which can enhance the credibility of the whole project. In order to efficiently achieve this goal, which so far has been done sporadically and on a best-effort basis, it is advisable that EURO-VO is present at at least two large astronomical conference per year (IAU General Assembly, COSPAR, JENAM etc.) with specific requests of scientific contribution as well as with demonstration booth, whenever

possible. The organization of specific VO sessions, analogous to that foreseen for the next IAU GA, should be fostered as well, either directly as EURO-VO or through the IVOA. It is foreseeable that the participation to and the preparation of such events will fall primarily under the responsibilities of the FC scientists, in cooperation with the other EURO-VO scientists.

### *EURO-VO FC Registry*

The EURO-VO FC will be responsible for holding a Resources Registry as per the IVOA definition at <http://www.ivoa.net/Documents/REC/ResMetadata/RM-20040426.html>.

It will serve as a Registration point for European - and other countries- VO actors who wish to publish VO services. It will be a so-called Full Registry. That means it will harvest other registries to assure completeness and conversely it will provide a harvesting interface to other registries. The main task will be maintenance of resource descriptors and validation services through a system visible through the EURO-VO web domain.

The first EURO-VO Registry should be working by January 2007.

### *Security Certificates and User Authentication*

A service provider may require means to authenticate users depending on the policy of the host organization. Conversely a user desires a Single Sign-On (SSO) mechanism to avoid interactive login prompts. For this purpose electronic user certificates need to be issued and maintained by a Certificate Authority (CA) in an agreed manner and software components need to recognize them.

EURO-VO will adopt the guidelines of the global International Grid Trust Federation IGTF (<http://www.gridpma.org>) and its European branch - the European Policy Management Authority for Grid Authentication in e-Science EUGridPMA (<http://www.eugridpma.org>). This will form the basis for authentication and single sign on functionality based on COTS software.

The EURO-VO FC will work with the DCA so that European Data Centres adopt the SSO TC implementation.

### *EURO-VO pages*

The new EURO-VO pages (<http://www.euro-vo.org/>) were presented to the SAC at its first meeting and opened to the public a week or so later. There is

still some work to be done on the concrete examples for astronomers of what the VO can and cannot do for them now. Such work would benefit from the new EURO-VO FC Astronomer in the process of being hired at ESO. Since she will not be able to start before December 1, 2006, we think this could be her first task, to be completed in two months or so. The FC will set-up a review of its community support through its Web pages within a year.

### EURO-VO HelpDesk and Community Support

With the opening of the FC new web portal, an interface as put in place to ensure that VO users can ask questions concerning capabilities and functionalities of existing VO applications, address malfunctioning reports, and inquiry about VO-related events (technical and scientific workshops, conference presentations and demo). This interface can simultaneously support inquiries by media and the general public on themes related to the VO concept and the exploitation of large-scale astronomical databases. We will refer hereafter to this interface as "VO HelpDesk". The VO HelpDesk is currently operational but we still need to identify the contact persons for the various areas. This should be done by the time of the IAU GA.

### PR and the EURO-VO.

At present, there are no funded PR and outreach activities in the EURO-VO. Lars Christensen at ECF has been helping out on a voluntary basis. ESO and ESA should try hard to get a dedicated person to help out, even part-time, with this.

### **The EURO-VO Facility Centre Roadmap (2006 – 2009)**

|                  |   |
|------------------|---|
| June – July 2006 | Coordinate EURO-VO participation to IAU GA              |
| July 2006        | Identify contact persons for VO HelpDesk                |
| November 22 2006 | Second SAC meeting                                      |
| November 2006    | First EURO-VO Science Workshop                          |
| December 2006    | Call for proposals for EURO-VO funded research projects |
| January 2007     | Release of Single Sign-On guidelines to data centres    |
| January 2007     | Opening of EURO-VO Registry                             |
| March 2007       | Second EURO-VO Technical Workshop                       |
| February 2007    | Completion of recipes on EURO-VO pages                  |
| April 2007       | Third SAC meeting                                       |
| April 2007       | Review of FC Web pages community support                |
| November 2007    | Second EURO-VO science Workshop                         |
| November 2007    | Fourth SAC meeting                                      |
| January 2008     | Third EURO-VO Technical Workshop                        |

|               |                                   |
|---------------|-----------------------------------|
| April 2008    | Fifth SAC meeting                 |
| November 2008 | Sixth SAC meeting                 |
| November 2008 | Third EURO-VO science Workshop    |
| January 2009  | Fourth EURO-VO Technical Workshop |
| April 2009    | Select new SAC                    |

#### Acronyms

|           |  |
|-----------|--|
| CA        | Certificate Authority  |
| COTS      | Commercial Off-the-Shelf   |
| EUGridPMA | European Policy Management Authority for Grid Authentication<br>in e-Science |
| IGTF      | International Grid Trust Federation  |
| SSO       | Single Sign-On   |