



*International*  
*Virtual*  
*Observatory*  
*Alliance*

## Guidelines for Participation

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## Abstract

This document gives an overview of the goals of the International Virtual Observatory Alliance (IVOA) and describes guidelines for participation.

## 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. The first release of this document was 2006-07-06.

A list of [current IVOA Recommendations and other technical documents](http://www.ivoa.net/Documents/) can be found at <http://www.ivoa.net/Documents/>.

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## 1 The Virtual Observatory Vision

The Virtual Observatory is a system that allows astronomers to interrogate multiple data centers in a seamless and transparent way that provides new powerful analysis and visualization tools within that system, and that gives data centers a standard framework for publishing and delivering services using their data. This is made possible by standardization of data and metadata, by standardization of data exchange methods, and by the use of a *registry* that lists available services and what can be done with them.

The long-term vision is not one of a fixed specific software package, but rather one of a *framework* that enables data centers to provide competing and co-operating *data services*, and that enables software providers to offer a variety of compatible *analysis and visualization tools* and *user interfaces*. The first priority for the VO projects worldwide has been to develop the standardized framework that will allow such creative diversity. The current priorities are to engage data providers so that the widest possible suite of information is VO accessible, and to enable new, innovative, and efficient research in astronomy.

## 2 The Advantages and Costs of VO Participation

As the capabilities of international astronomical research are being expanded via new and expensive multi-wavelength capabilities on the ground and in space, there is an increasing awareness in scientists and funding bodies of the need to maximize the scientific return on these significant investments and provide a data heritage. Data must be captured, described, processed, and stored in such a way that it can be used by future generations of researchers and by programs with scientific goals that may differ from those that originally sought the data. Taking data, describing data, processing data, and storing data in such a way that it can be reused comes at a cost. These costs will perhaps include fundamental changes in the way observatories are designed and operated. The VO is the critical infrastructure that enables astronomers to fully realize the returns on an investment in data heritage. There are numerous advantages to participation in the VO, including increased visibility and usage of a project's or organization's data and facilities, and thereby increased recognition and support. VO participation is a lever arm, raising the standards for data quality and leading to higher quality astronomical research worldwide. VO participation also provides access to world-class data for scientists in less advantaged countries, by allowing for in-kind contributions from groups with, for example, software expertise rather than large telescopes.

## 3 The IVOA Mission

The International Virtual Observatory Alliance (IVOA) was formed in June 2002 during the conference *Towards an International Virtual Observatory* held in Garching, Germany. The mission of the IVOA is

“To facilitate the international coordination and collaboration necessary for the development and deployment of the tools, systems, and organizational structures necessary to enable the international utilization of astronomical archives as an integrated and interoperating Virtual Observatory.”

The IVOA is not itself a project, but rather a forum for increasing cooperation on technical and programmatic issues facing the development and operation of an International Virtual Observatory. The founding principles of the IVOA are further elucidated at <http://www.ivoa.net>.

## 4 The IVOA Process

The IVOA defines and regularly updates a development roadmap. The roadmap focuses on those infrastructure components of the VO necessary for interoperability, such as resource discovery, data models, data access and

storage protocols, grid and web services, security, semantics, query languages, data representations, messaging protocols, and transient event notifications. It is essential that the collective resources of the IVOA partners be utilized to ensure the success of these developments and to provide the fundamental common framework of standards and systems necessary for the VO to work on an international scale. This framework opens the doors to a wide range of new tool development and new scientific investigations.

IVOA collaboration is realized by semi-annual international Interoperability Workshops, international telephone conferencing, the extensive use of intranet technologies at project web sites, topical e-mail groups, and participation in technical and scientific meetings such as ADASS and SPIE conferences. The IVOA also works closely with the IAU (in particular Commission 5) to ensure that emerging standards for the VO are assessed and adopted at the level appropriate to their significance for international astronomy.

## 5 IVOA Membership

The IVOA encourages observatories, universities, and astronomy projects worldwide to become involved in the VO as data, information, and computational service providers, and as consumers of the enriched, multi-wavelength view of the universe. In order for astronomers, educators, and the public to make effective use of the Virtual Observatory, however, its holdings must be well documented and must be delivered to users in the agreed formats and protocols. We encourage wide participation in the VO development effort, e.g., through interested parties attending the IVOA Interoperability Workshops and joining the mailing lists of the various IVOA Working Groups and Interest Groups. Information about these meetings and mailing lists is available on the IVOA web site, <http://ivoa.net/>.

All funded national and international VO collaborations are welcome to join the IVOA. Development teams and data providers are expected to organize themselves at the national and/or international level; individual observatories or universities are not candidates for IVOA membership. There will be a diversity of projects, programs, and initiatives, from small and specific to large and general. Each national or international collaboration will have representation on the IVOA Executive Committee.

There is more to being a contributing partner in the IVOA than simply joining an e-mail distribution list. IVOA participating organizations are expected to:

- Have serious VO development and/or operational efforts that represent wide collaboration and consensus gathered at the national and/or international levels;

- Support full and open exchange of technical developments, including software sharing;
- Participate in the definition and evaluation of VO standards and protocols, and once such standards and protocols are agreed upon, to implement VO-compliant interfaces to data, catalogs, and computational services;
- Support open access to data and information services, commensurate with national or project-imposed proprietary periods;
- Document data and information services according to VO-defined data quality descriptions; and
- Register data and information services so that they can be discovered and utilized readily in the VO.

These expectations are not intended to be onerous; rather, they reflect the responsibilities associated with the acquisition, processing, and publication of data acquired with modern astronomical instruments, especially those funded through public resources.

VO collaborations interested in joining the IVOA should contact the Chair of the IVOA Executive for further guidance. The e-mail address of the IVOA Chair can be found under the Contacts link on <http://ivoa.net/>. Typically we require a statement describing the scope and support for the collaboration, the areas of expertise and experience in the team, and the types of data holdings and services to be made available to the VO.

## 6 Policy on Inactive IVOA Members

It is clear that from time to time some members of the IVOA may, for various reasons, reduce their activity in VO projects and in their participation in the IVOA. Such decreases in activity may be temporary, and in such cases it is desirable to retain an association between such inactive members and the IVOA without the member having to reapply for IVOA membership once the member wishes to become active again. On the other hand, it is also cumbersome for the IVOA to retain membership status for members who have clearly lost their interest or ability to associate with the IVOA.

Any member who ceases all participation in IVOA activities, including attendance at Interop meetings, Working Group and Interest Group participation, or participation in any other special meetings or activities of the IVOA for a period of 12 months or more shall be considered an inactive member.

If such inactivity is not accompanied by any communication between the member and the IVOA Chair, the Chair or designee of the Chair will attempt to contact the member in order to determine the member's intentions. Such attempts will be repeated at reasonable intervals for a period of 2 years, and if no contact is made after that time the member will be dropped from the membership list of the IVOA.

However, if contact is made with the inactive member, and if that member expresses an intention to resume active membership within a reasonable period as determined by the Chair, then that member shall remain in inactive status within the IVOA. Similarly, if any member contacts the Chair in advance and advises of their need to move to inactive status with an intention to resume active membership in the near future, then that member will move to inactive status in the IVOA. A review of inactive members and their progress toward resumption of active status will be carried out at least annually by the IVOA Chair.

## 7 Changes from Previous Versions

From V1.0 to V1.1:

- Added Section 6, the Policy on Inactive IVOA Members, based on a resolution drafted in April 2008 by then IVOA Chair David De Young and approved by the IVOA Executive at its May 2008 meeting.
- Updated wording in Section 1 to reflect current priorities on engagement.
- Minor revisions to wording in Sections 3 and 4.
- Expanded concept of *project* in Section 5 to include *collaborations* and *initiatives*.