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VODA

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Abstract. We have developed a prototype general purpose VO application called VODA using standard IVOA protocols and the Astro Runtime (AR) facade for access to external VO resources. VODA allows browsing and resource discovery in the VO and the management of a Virtual Directory of data references. The Virtual Directory forms a local, presistent personal view of the VO where referenced data sets may be downloaded or directly passed to visualisation tools such as Aladin, fv or DS9. We are currently experimenting with the use of Plastic as a general purpose connection between VODA and VO tools. VODA also offers the possibility for client-side applications to access VO resources via the Virtual Directory.

We will describe the motivation and implementation experiences as well as giving some simple examples of VODA in action.

1. Introduction

Sampo[1] (Hook et al. 2005) is a collaborative project between Finland and ESO to investigate future data processing requirements and technologies in astronomy, and to perform pilot studies. A sub-project of Sampo has been investigating the Virtual Observatory, and specifically the relationship between remote Virtual Observatory (VO) resources and local data analysis applications. VODA is an experiment to establish a personal, persistent local "Virtual Directory" of Virtual Observatory data resources and to link this with visualization tools and the Virtual Observatory itself, mainly using the Astro Runtime (AR, Winstanley 2006) and PLASTIC.

[1] `http://www.eso.org/sampo/`

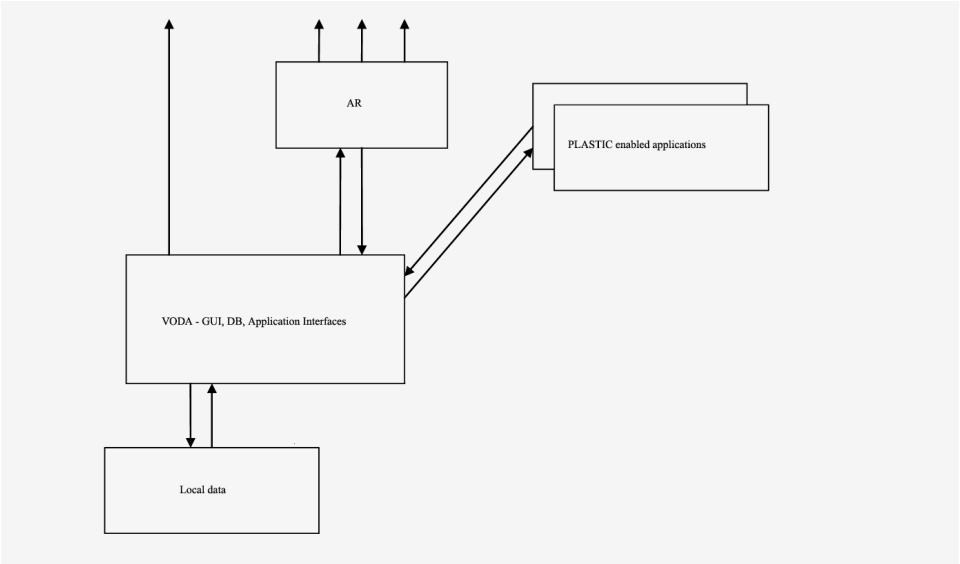

Figure 1. VODA High-level Architecture

2. High-level Architecture

VODA is a desktop Java application using an embedded database server to manage references to external resources. Access to the VO is through the Astro Runtime from AstroGrid and visualisation is done using PLASTIC to connect to appropriate tools. Communication is done using XML-RPC. The high-level architecture is shown in Figure 1.

3. Virtual Directory

The Virtual Directory is a local, persistent and private "view" of the Virtual Observatory resources. It stores references to remote and local data and metadata from query results. The user can manage this view dynamically and organize the references according to his requirements. All the data references can be visualized in several ways (Aladin, TOPCAT, DS9, etc.) this is made possible with the use of PLASTIC. User may add new resources to his "library" from new queries or from external sources. The Virtual Directory can be managed and accessed through an application interface.

4. Data Discovery

VODA uses the Astrogrid Astro Runtime (AR) for access to VO resources through standard IVOA protocols (Registry, SIAP, SSAP, Cone, etc.). Results can be stored in the Virtual Directory, visualized directly by local tools, downloaded, or passed to PLASTIC-aware applications. The Virtual Directory can be updated with search results from any search tool that is PLASTIC-aware and produces a VOTable.

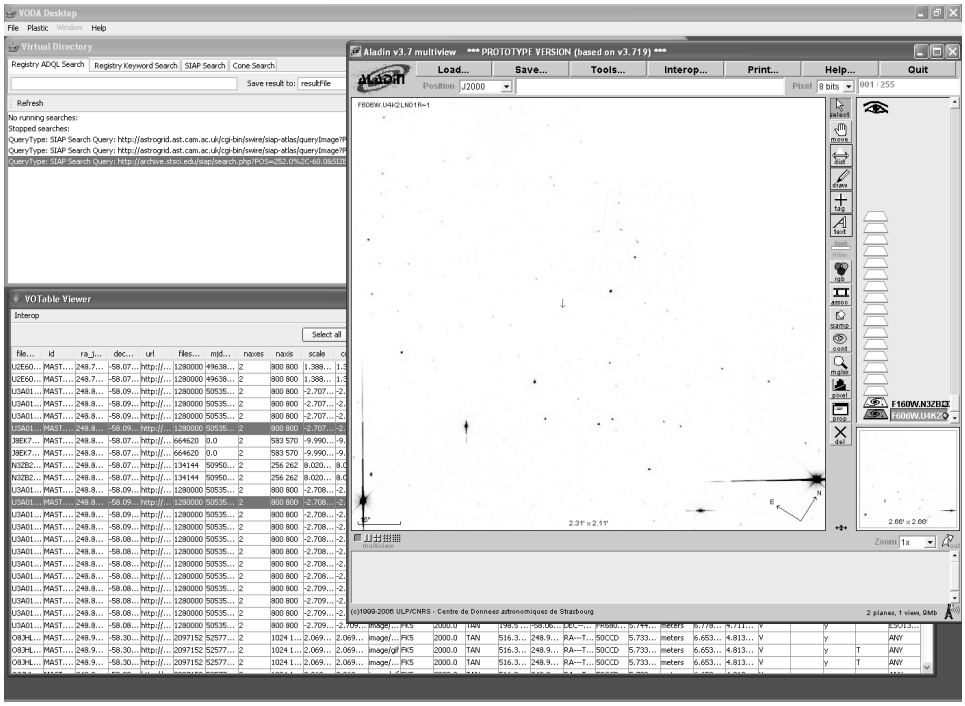

Figure 2. Using VODA to load a remote images into Aladin.

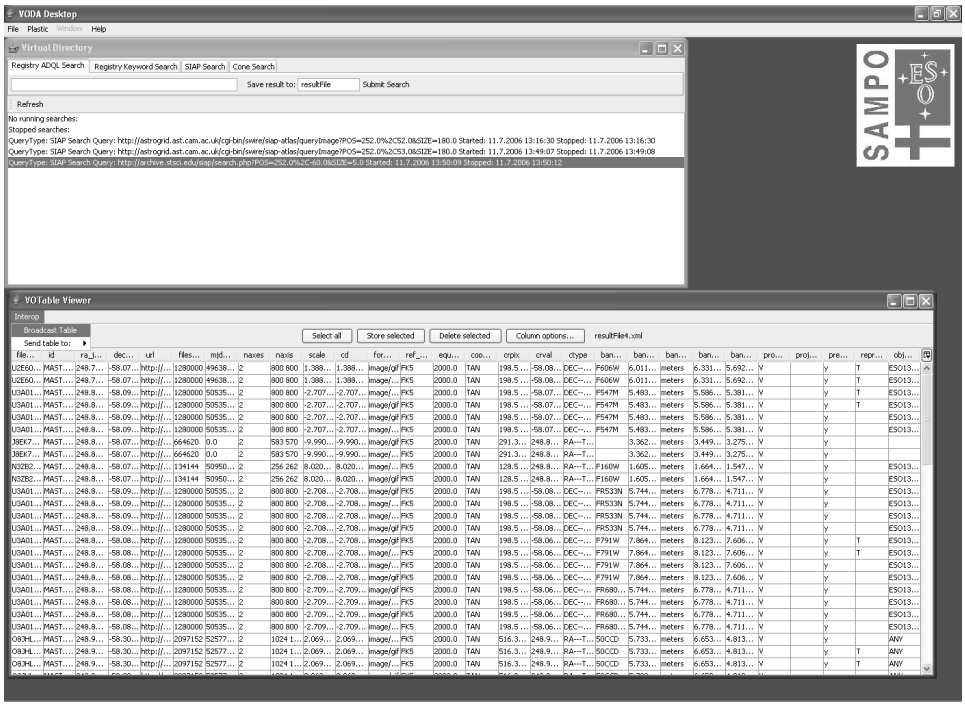

Figure 3. Viewing query results and other VOTable based data from VODA.

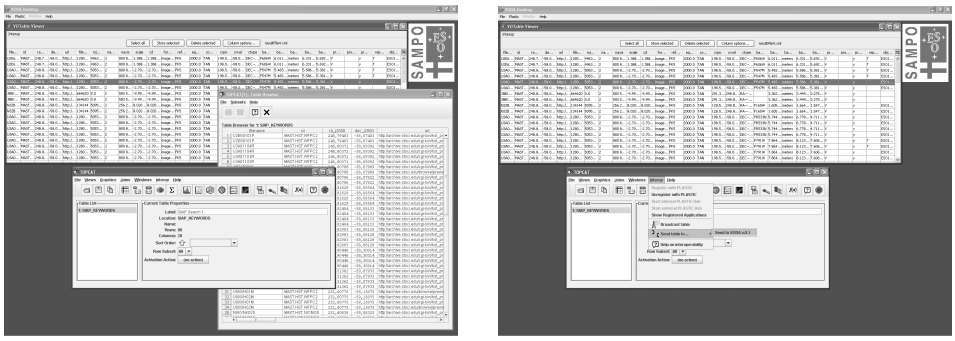

Figure 4. Through PLASTIC one can send VOTables from VODA to Topcat or VOTables from Topcat can be ingested into the VODA Virtual Directory.

5. Data Download

References in the Virtual Directory can be downloaded to a local disk when required. A possible additional future feature could be to allow access to VOSpace resources, making it possible to store and control data within the VOSpace. To view metadata a full download is not necessary. VODA automatically handles all required downloads for external tools that require local data (e.g., DS9).

6. Conclusions and Future Plans

The VODA experiment has shown that the current VO technologies and protocols make the creation of a desktop application a relatively smooth process. VODA was an experiment and we have no current plans to produce a public version and no further resources are available for further development. However, anyone interested in the ideas or our experiences are encouraged to contact the authors.

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References

Hook, R. N., Møller, P., Ignatius, J., Vasko, K., Péron, M., Quinn, P. 2005, ESO Messenger, 120, 17

Winstanley. N. 2006, this volume, [O6a.2]