

# Server-Side Tools

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# VO-CLI Overview

- Hide details of VO protocols from applications
- Provides:
  - Hi-level, *easy-to-use* interface, using common Unix interface
  - Easy to call from any number of scripting environments
  - Can be used to create web-apps on the server that hides VO-CLI complexity
- Task form of underlying VOClient multi-language interface

# VO-CLI Applications

## VOSESAME

**Name resolver using Sesame service (Simbad/NED)**  
**Configurable output, multiple inputs**

## VOREGISTRY

**VO Registry search and resource resolution**

## VODATA

**Uses capabilities of both of the above**  
**VO catalog and image access (SSA/VOSpace/Tap etc planned)**

# VO Sesame: Name Resolution

## Usage:

```
vosesame [<flags>] [<objfile> | [<target> ...] ]
```

```
-a    print all information about the object
-d    print position in decimal degrees (default)
-e    print position errors
-h    print help summary
-n    print object name
-t    print object type
-s    print position as sexagesimal coordinates
-v    print verbose warning output
-i    invert search to print unresolved objects
-f    force Sesame svc invocation and ignore cached values
-o    specify output file (default: stdout)
-A    output an ASCII table of results (default)
-C    output a CSV table of results
-T    output a TSV table of results
-H    output a table heading
```

# VORegistry: Examples

- 1) Find all services with radio data of Abell clusters.

```
% voregistry -b radio abell
```

- 2) Find all resources that mention Keck, how many are image services?

```
% voregistry -count keck
```

```
% voregistry -t image -count keck
```

# Scavenger Hunt

3) How many Bautz-Morgan type II Abell clusters are within 20 degrees of the south pole?

Solution:

```
% vodata -V -O - ivo://nasa.heasarc/abell 0.0 -90.0 20 | \  
  stlts tpipe ifmt=votable in=- \  
  cmd='select "bmttype == \"II\""' omode="count"
```

# Web-Interface

**NVO** National Virtual Observatory

**VOData: Query & Access VO Data**

Home | Query & Access Data | Search for VO Services | Resolve Object Names | Download Software | Take a Tour | Help | Contact Us

**NOAO**

**Query:** [Reset] [Submit]

ShortName or ivo:// Identifier  
2mass-psc,HST

Object Name or ICRS Position  
ngc4258

Search size: 0.1 [D] [M] [S]

Verbosity: [Low] [Normal] [High]

**Output Format**      **Options**

CSV       KML       Count resources  
 ASCII       Raw       Query all  
 HTML       TSV       Download Data  
 XML       Col Hdrs

**Constraints:**

Type: Any      Bandpass: Any

**KML Opts:**      **Extras:**

By Obj       Labels       Positions  
 By Svc       BBox       AccesURLs  
 Both       Verb       HTML  
 None       All       KML (single)

**Response:**

Executing Cmd: `vodata -v -C 2mass-psc,HST ngc4258 0.1`

```
# Service query 'HST' non-unique (2 found)...
# Using CONE Resource HST -> ivo://nasa.heasarc/hstaec
# Resolver: ngc4258 -> ngc4258 184.730000 47.310000 (0.10)
# No. of Objects: 1
# No. of Services: 2
# Search size: 0.100000 (degrees)
#
# Service          NRec   Typ Resource Title
# -----
#
# HST              793    C HST Archived Exposures Catalog
# 2mass-psc       41     C 2MASS All-Sky Point Source Catalog
#
#
# 834 (Records Found)
# 2 (Resources Queried)
# 0 (Failed Requests)
# 2 (Successful Requests)
# (2 Results w/ Data)
#
#
# Approx Time: 00:00:21 (00:12 Resolution, 00:09 Query, 00:00 Access)
```

Result Directory Contents and Downloads: vocli6704

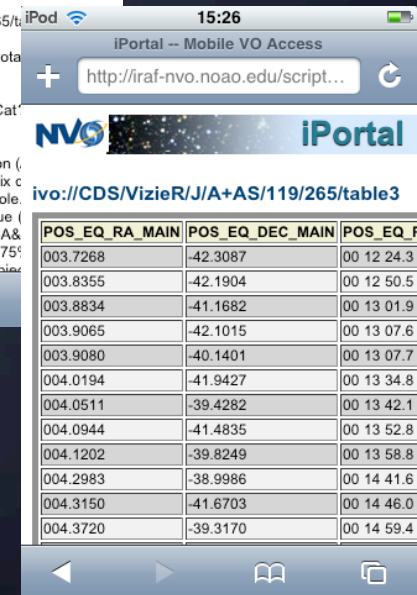
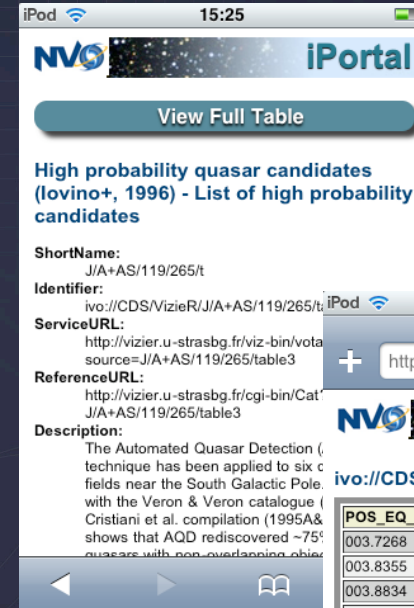
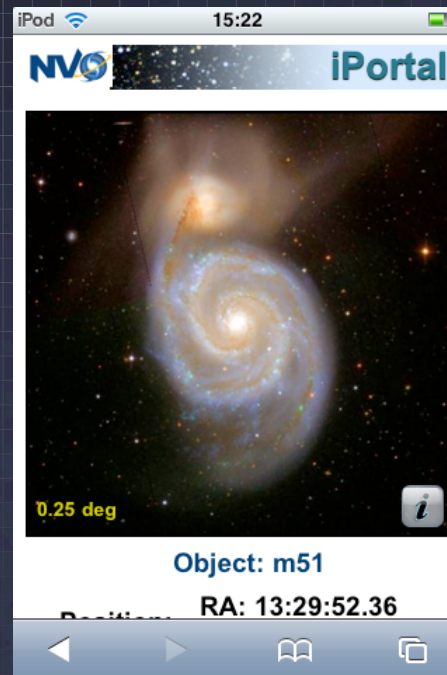
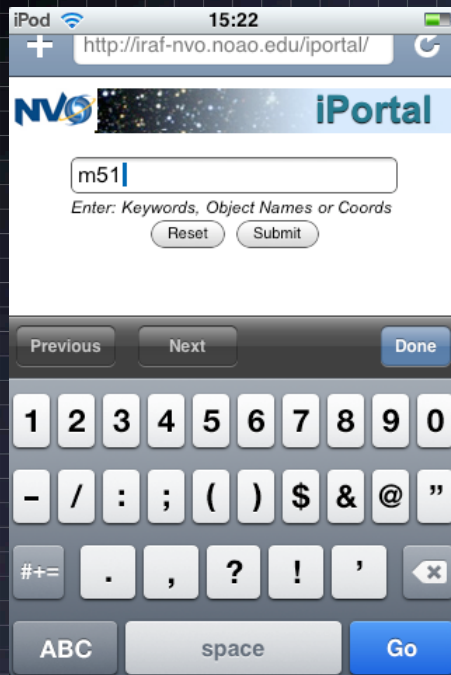
```
--rw-r--r-- 1 apache apache 15K Oct 28 14:04 2mass-psc_C_ngc4258_6738.csv
--rw-r--r-- 1 apache apache 125K Oct 28 14:04 HST_C_ngc4258_6739.csv
```

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**NSF** **NASA** **NOAO** **IVOA**

# Other CGI Apps

## iPortal



<http://iraf-nvo.noao.edu/iportal>





# Other CGI Apps

## Mobile VO

**NVO Mobile VO**

Obj Name/Keyword

Resolver

Registry

Inventory

**NVO Mobile VO**

Obj: m31  
RA: 00:42:44.3  
Dec: 41:16:09.4  
Type: LINER

**NVO Mobile VO**

Resources Found: 117

[ROSAT/M31](#)

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[M31/GC](#)

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[Chan/M31](#)

**NVO Mobile VO**

ShortName: Chan/M31  
Title: M31 Central Region Catalog  
X-Ray Point Source Catalog  
Subject: Survey Source  
Identifier: ivo://nasa.heasarc/m31cxoxray  
Type:  
Description: This table contains  
M31 Central Region Catalog

**NVO Mobile VO**

Obj Name/Keyword

Resolver Registry Inventory

**NVO Mobile VO**

Resources: 142  
Records: 1920

407 [F175W and F275W photometry of M31 and M32](#)

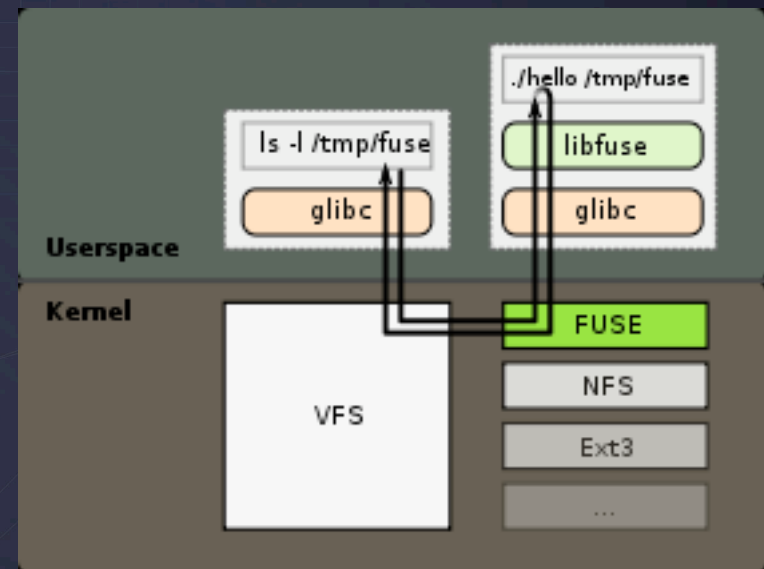
<http://iraf-nvo.noao.edu/mvo>

# VO-CLI Recent Work

- New Registry Interface support
  - Took longer than expected
  - Modifications more extensive than anticipated
  - Uses VOTable form of the service
- Interface to Inventory service
  - Provides faster lookup of catalog data than direct queries
  - Inventory still being populated, interface still being negotiated

# User-Space Filesystems

- FUSE
  - Open-source project
  - Loadable kernel module
  - Linux and OSX supported
  - Virtual filesystems can be made of almost anything:
    - Archive/compressed files
    - Gmail data storage
    - Virtual clusters
    - Flickr as a directory tree



# So What?

- How could VO use this:
  - VOSpace as a “local” filesystem
  - VOTable browsing
  - Registry Browsing
  - Web-services appear as local executables
  - Specialized data formatters
  - Mount a database table as a directory tree
  - Access in-memory data structure as files
  - ?????



# DEMO





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