SVOCat

Easily publishing catalogues in the VO (and web)

Carlos Rodrigo Blanco[1,2]

[1]CAB,INTA-CSIC
[2]Spanish Virtual Observatory

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Introduction

SVOCat 1.0 is an application intended to make easier the publication of an astronomical catalogue,

- as a web page and
- as a VO ConeSearch service.

- easy to install and configure

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SVOCat 2.0, advanced features:

- handle also spectra associated to resources
- + VO SSA
- + VO DataLink

Introduction

Our intention is not to provide a black box-like tool but a tool characterized by:

- Fast learning curve.
  - Good and simple starting point to VO development.
  - Helps to learn about what is being done.
- Flexibility and versatility.
  - It allows starting the installation and configuration process at different steps.
  - Easy adaptation to your particular requirements.

Requirements

- A web server (Apache, for instance).
- PHP
- MySQL database.

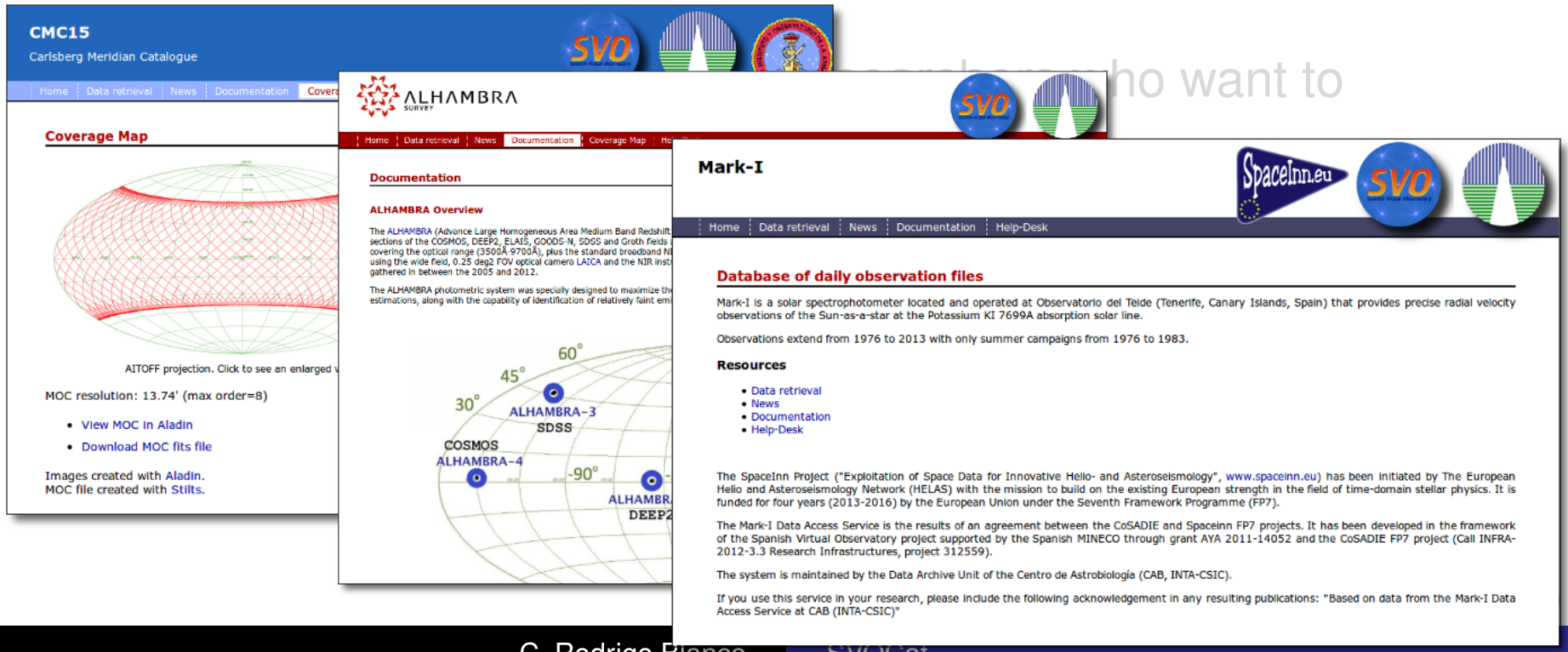
and, in a typical case:

- Your catalogue can be seen as a single table.
- Two of the columns give RA and DEC in decimal degrees.
- Your have your data as a csv file.

Examples

The tool has proved to be useful for very different communities

- From medium/large consortia and observatories ...
  - CMC15 (Carlsberg Meridian Catalogue).
  - Alhambra final catalogue.
  - The Mark-I solar spectrophotometer archive.

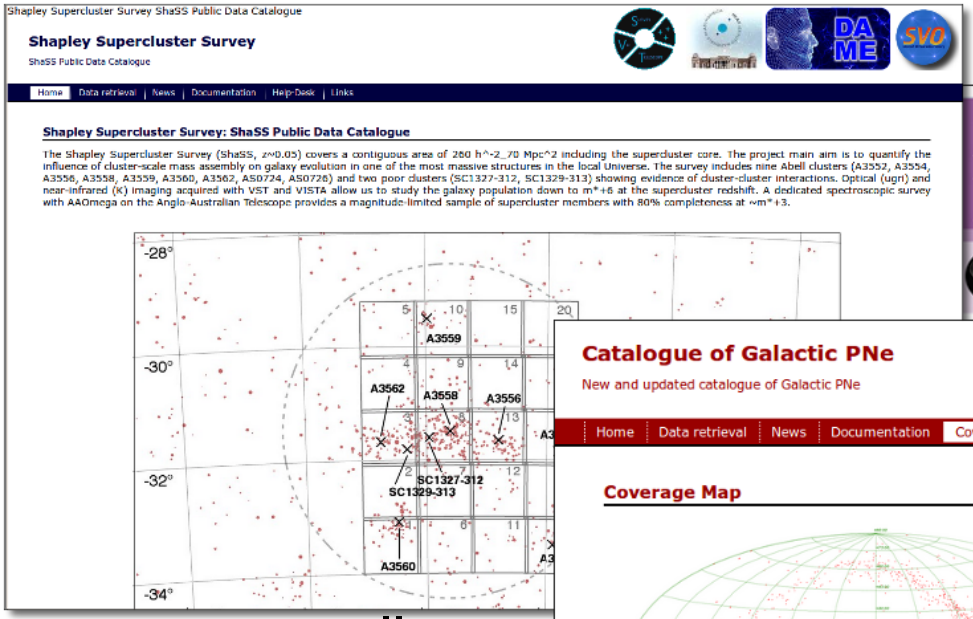


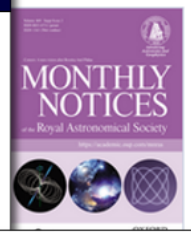
Examples

The tool has proved to be useful for very different communities

- From medium/large consortia and observatories ...
  - CMC15 (Carlsberg Meridian Catalogue).
  - Alhambra final catalogue.
  - The Mark-I solar spectrophotometer archive.
- to small groups / individual researchers who want to publish their data in the VO
  - Shapley Supercluster Survey.
  - Stars with debris disks and planets.
  - The SVO hot subdwarf archive.
  - Catalogue of Galactic PNe.
  - THROES catalogue.

Examples



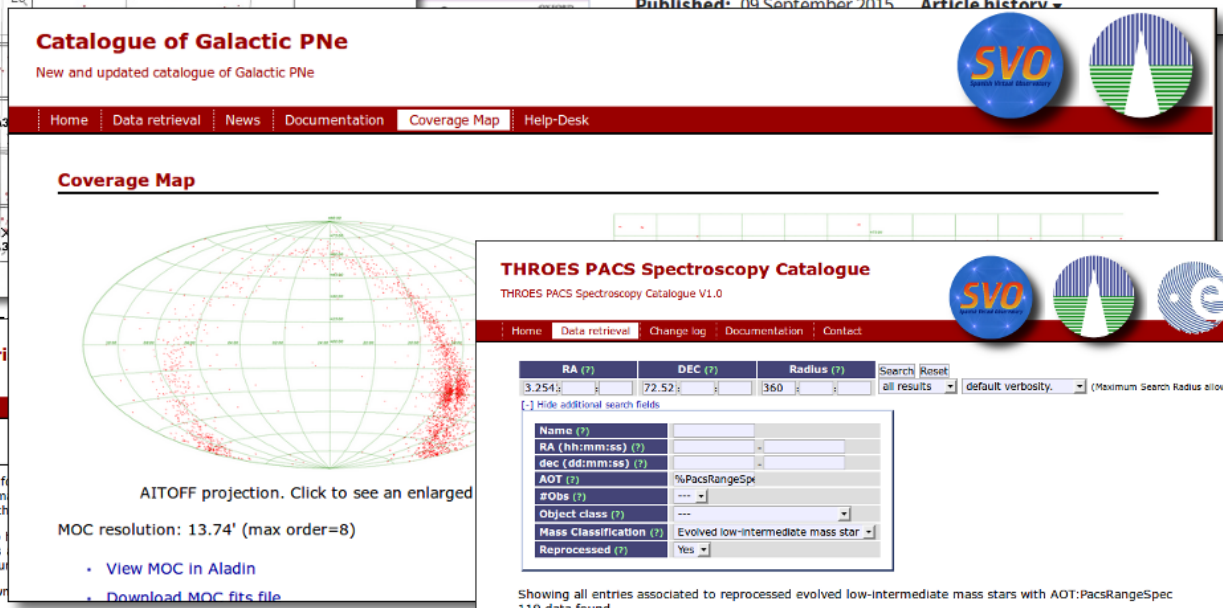


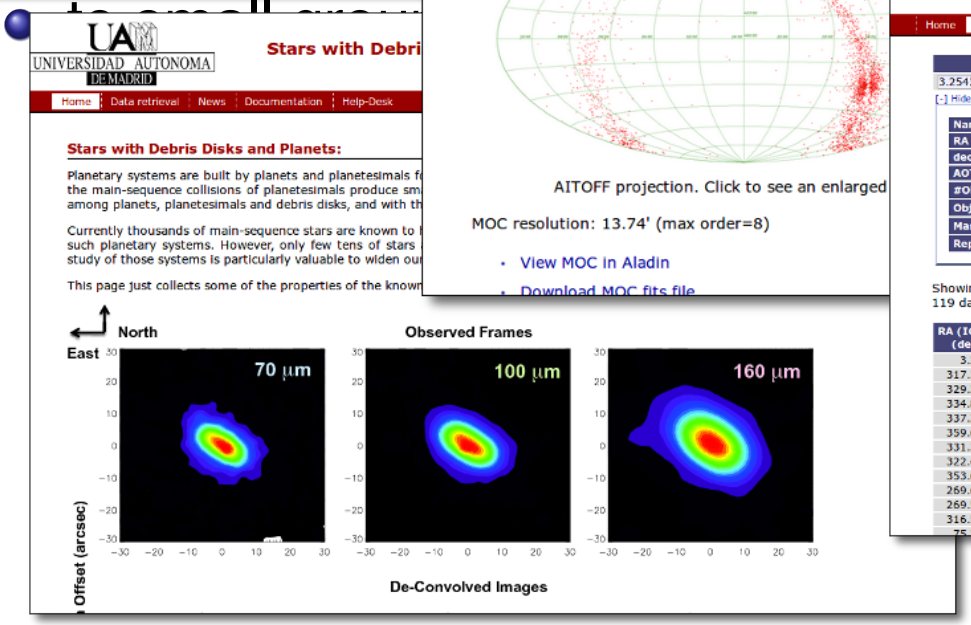
Shapley Supercluster Survey: construction of the photometric catalogues and *i*-band data release

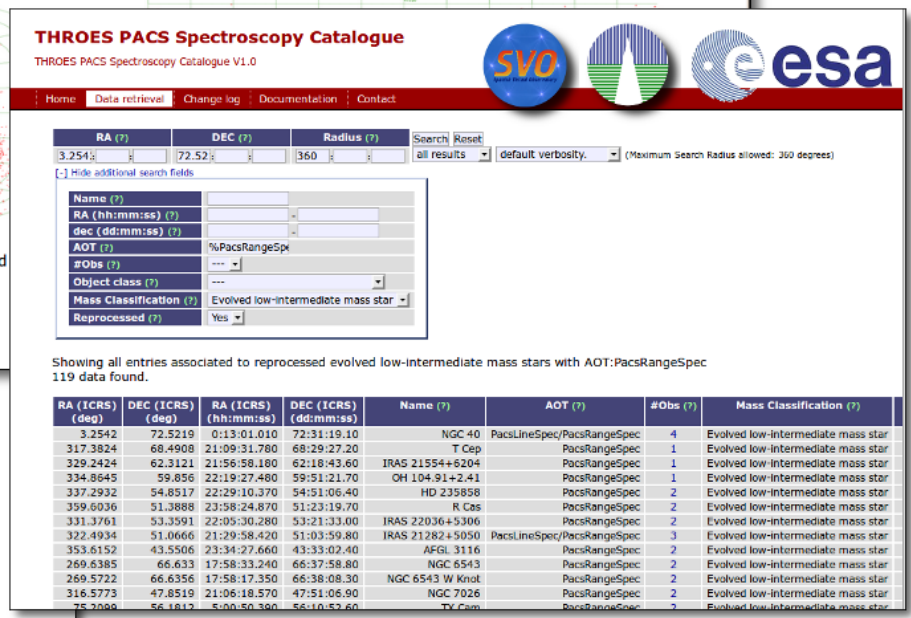
A. Mercurio ✉, P. Merluzzi, G. Busarello, A. Grado, L. Limatola, C. P. Haines, M. Brescia, S. Cavuoti, M. Dopita, M. Dall'Ora ... Show more

Monthly Notices of the Royal Astronomical Society, Volume 453, Issue 4, 11 November 2015, Pages 3685–3698, https://doi.org/10.1093/mnras/stv1905

Published: 09 September 2015 **Article history**







Online Documentation

SVOCat Documentation

Version 0.4, Apr 2014, author: Carlos Rodrigo

Home | Download | Documentation | Examples | Credits | Help-Desk

(You can see this documentation as a single web page if you wish)

Introduction

SVOCat is an application intended to make easier the publication of an astronomical catalogue, both as a web page and as a Virtual Observatory ConeSearch service.

Our intention is not no make it "magical" so that it makes all the work for you. We have tried to make it so that it's easier for you to learn about what is being done, to start the installation and configuration process at different steps if you wish, and to change the application if you need to do it for your case.

Requirements:

- A web server (Apache, for instance) and access to a web directory to install the files.
- PHP
- MySQL database.

(See some technical details below)

We assume that:

- Your catalogue can be seen as a single table with several columns (one for each property provided by the catalogue) and several lines (one for each catalogue entry, for instance, each observed object)
- Two of the columns give RA and DEC in decimal degrees.

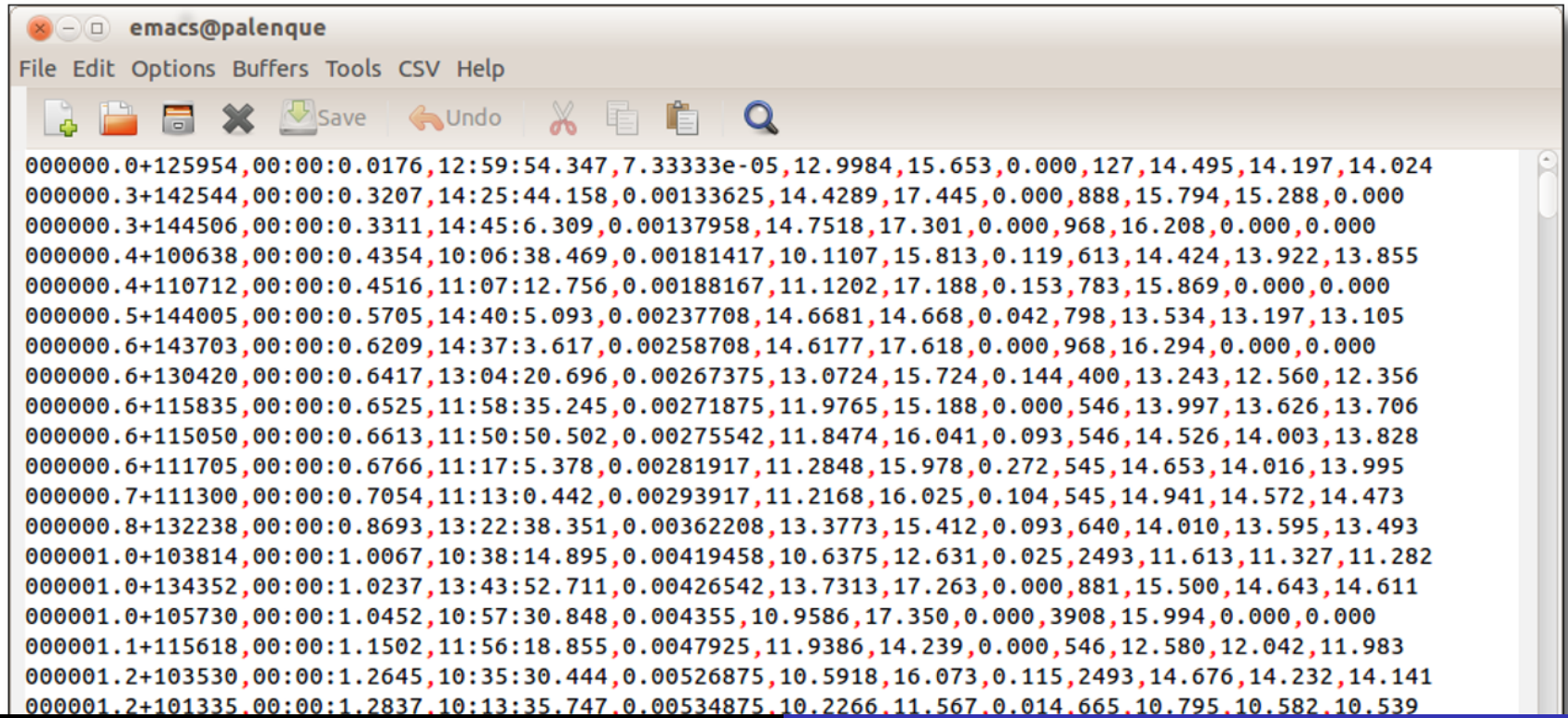
and that your have your data either:

- as a csv file with different columns separated by commas. It can be a series of different csv files with the same structure if your catalogue is very big and you prefer to split it in different files.
- as a table in a mysql database.

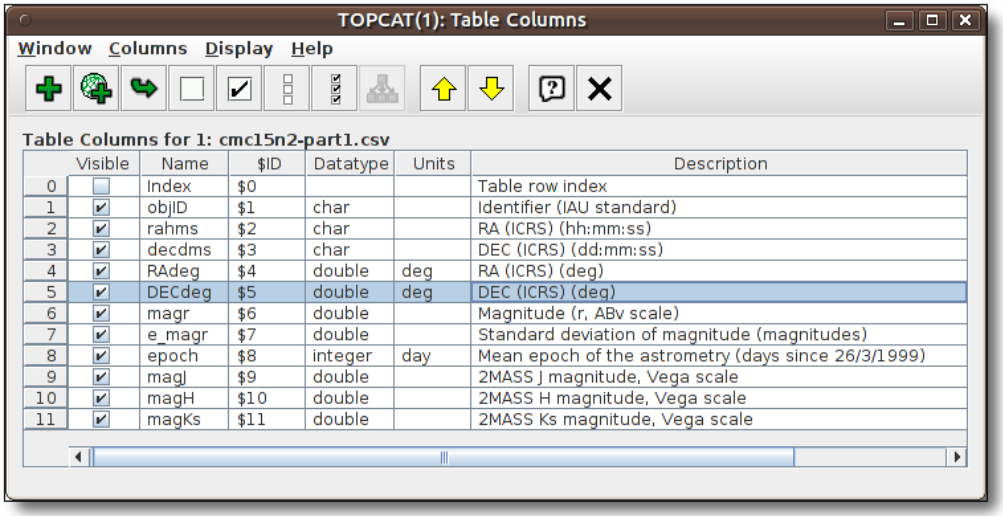
Configuration Example

Create a service with SVOCat for a subsample of CMC15 catalogue,

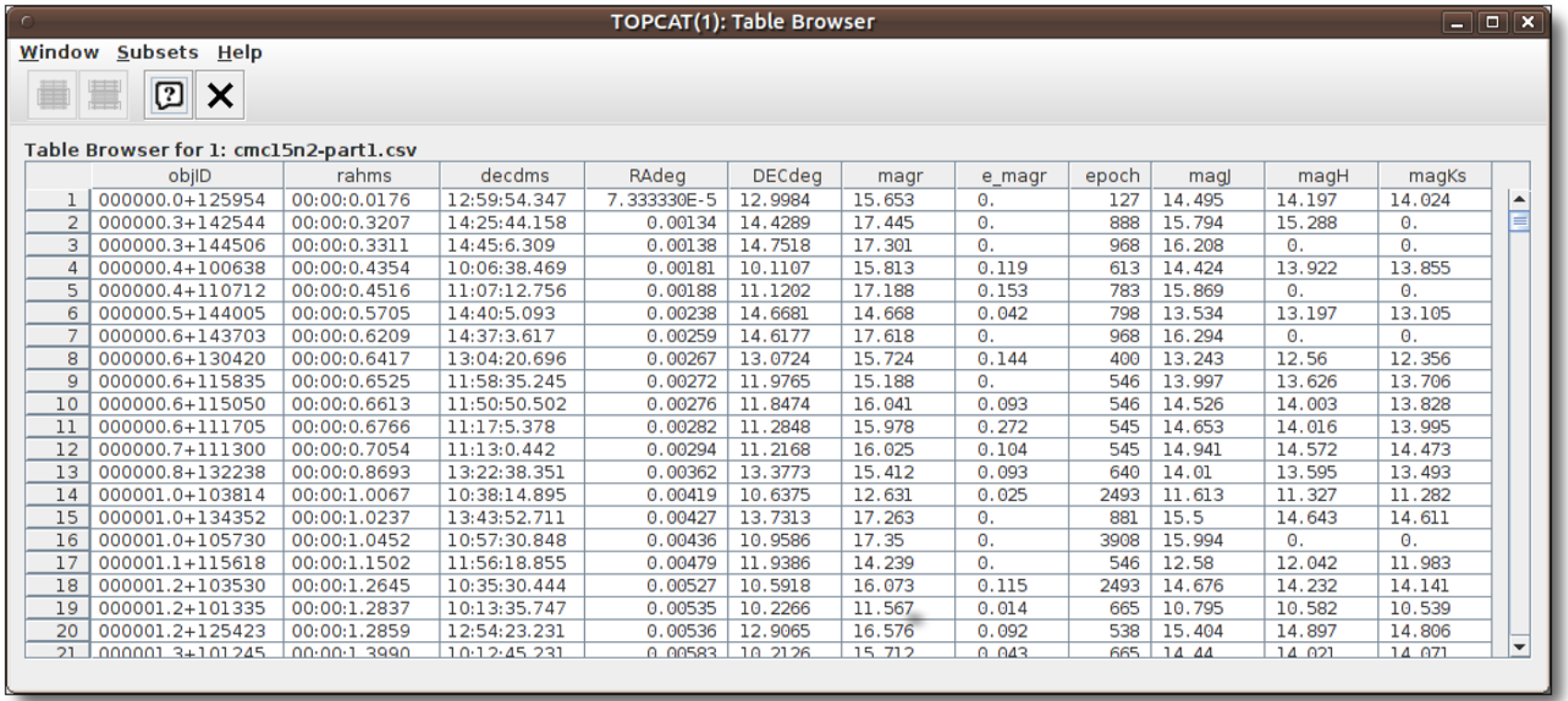
- 5000 objects
- 9 columns
- data initially in a CSV file.



Configuration Example



	Visible	Name	$ID	Datatype	Units	Description
0	☐	Index	$0			Table row index
1	☑	objID	$1	char		Identifier (IAU standard)
2	☑	rahms	$2	char		RA (ICRS) (hh:mm:ss)
3	☑	decdms	$3	char		DEC (ICRS) (dd:mm:ss)
4	☑	RAdeg	$4	double	deg	RA (ICRS) (deg)
5	☑	DECdeg	$5	double	deg	DEC (ICRS) (deg)
6	☑	magr	$6	double		Magnitude (r, ABv scale)
7	☑	e_magr	$7	double		Standard deviation of magnitude (magnitudes)
8	☑	epoch	$8	integer	day	Mean epoch of the astrometry (days since 26/3/1999)
9	☑	magJ	$9	double		2MASS J magnitude, Vega scale
10	☑	magH	$10	double		2MASS H magnitude, Vega scale
11	☑	magKs	$11	double		2MASS Ks magnitude, Vega scale



	objID	rahms	decdms	RAdeg	DECdeg	magr	e_magr	epoch	magJ	magH	magKs
1	000000.0+125954	00:00:0.0176	12:59:54.347	7.333330E-5	12.9984	15.653	0.	127	14.495	14.197	14.024
2	000000.3+142544	00:00:0.3207	14:25:44.158	0.00134	14.4289	17.445	0.	888	15.794	15.288	0.
3	000000.3+144506	00:00:0.3311	14:45:6.309	0.00138	14.7518	17.301	0.	968	16.208	0.	0.
4	000000.4+100638	00:00:0.4354	10:06:38.469	0.00181	10.1107	15.813	0.119	613	14.424	13.922	13.855
5	000000.4+110712	00:00:0.4516	11:07:12.756	0.00188	11.1202	17.188	0.153	783	15.869	0.	0.
6	000000.5+144005	00:00:0.5705	14:40:5.093	0.00238	14.6681	14.668	0.042	798	13.534	13.197	13.105
7	000000.6+143703	00:00:0.6209	14:37:3.617	0.00259	14.6177	17.618	0.	968	16.294	0.	0.
8	000000.6+130420	00:00:0.6417	13:04:20.696	0.00267	13.0724	15.724	0.144	400	13.243	12.56	12.356
9	000000.6+115835	00:00:0.6525	11:58:35.245	0.00272	11.9765	15.188	0.	546	13.997	13.626	13.706
10	000000.6+115050	00:00:0.6613	11:50:50.502	0.00276	11.8474	16.041	0.093	546	14.526	14.003	13.828
11	000000.6+111705	00:00:0.6766	11:17:5.378	0.00282	11.2848	15.978	0.272	545	14.653	14.016	13.995
12	000000.7+111300	00:00:0.7054	11:13:0.442	0.00294	11.2168	16.025	0.104	545	14.941	14.572	14.473
13	000000.8+132238	00:00:0.8693	13:22:38.351	0.00362	13.3773	15.412	0.093	640	14.01	13.595	13.493
14	000001.0+103814	00:00:1.0067	10:38:14.895	0.00419	10.6375	12.631	0.025	2493	11.613	11.327	11.282
15	000001.0+134352	00:00:1.0237	13:43:52.711	0.00427	13.7313	17.263	0.	881	15.5	14.643	14.611
16	000001.0+105730	00:00:1.0452	10:57:30.848	0.00436	10.9586	17.35	0.	3908	15.994	0.	0.
17	000001.1+115618	00:00:1.1502	11:56:18.855	0.00479	11.9386	14.239	0.	546	12.58	12.042	11.983
18	000001.2+103530	00:00:1.2645	10:35:30.444	0.00527	10.5918	16.073	0.115	2493	14.676	14.232	14.141
19	000001.2+101335	00:00:1.2837	10:13:35.747	0.00535	10.2266	11.567	0.014	665	10.795	10.582	10.539
20	000001.2+125423	00:00:1.2859	12:54:23.231	0.00536	12.9065	16.576	0.092	538	15.404	14.897	14.806
21	000001.3+101245	00:00:1.3990	10:12:45.231	0.00583	10.2126	15.712	0.043	665	14.44	14.021	14.071

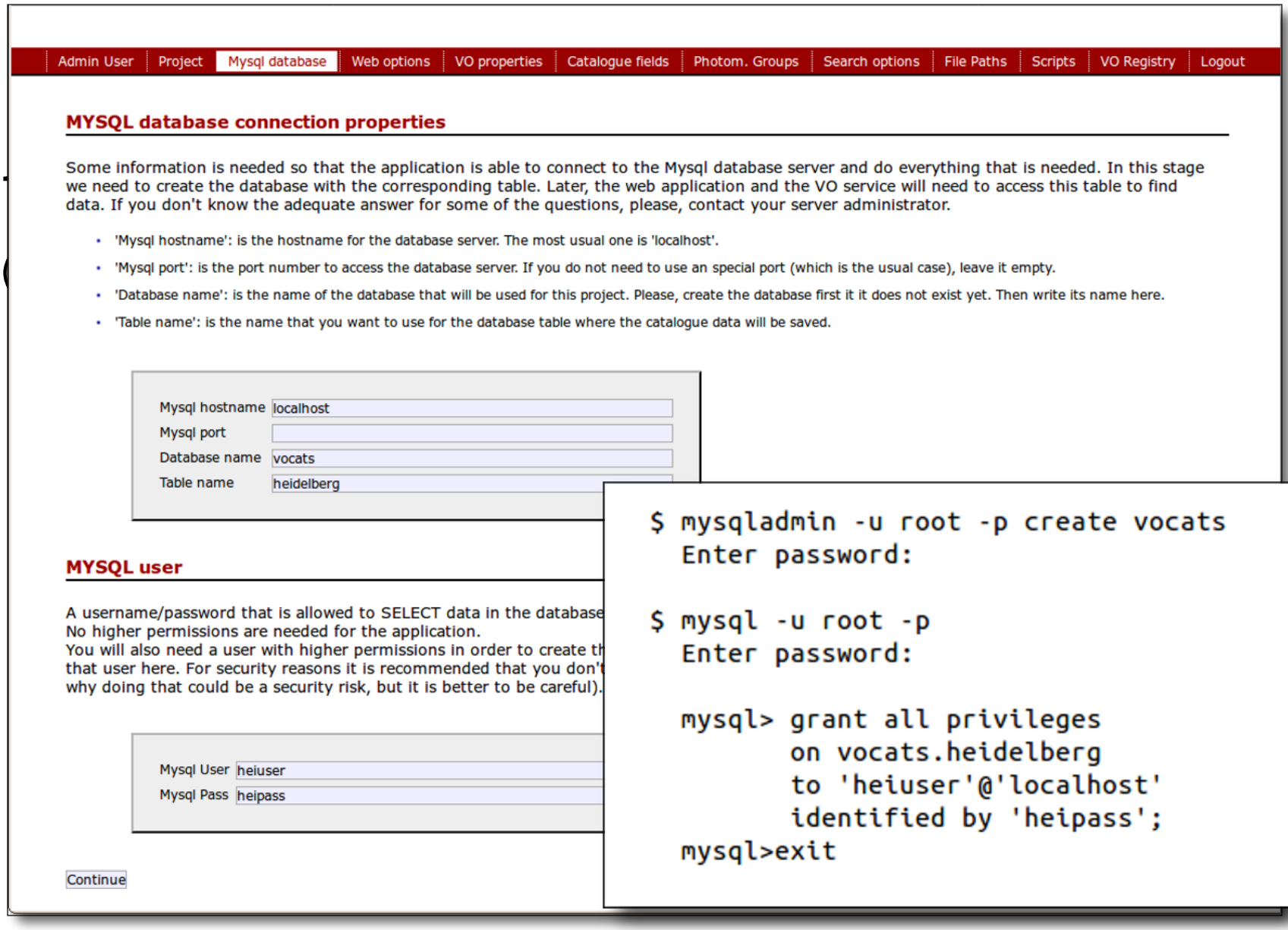
Configuration Example

1.- Create a Database

(if you already have a database you can skip this step)

- MySQL db/user/password
- Which fields/columns? names and datatypes.
- Create scripts with SVOCat
- scripts + CSV $\Rightarrow$ populate database

Configuration Example



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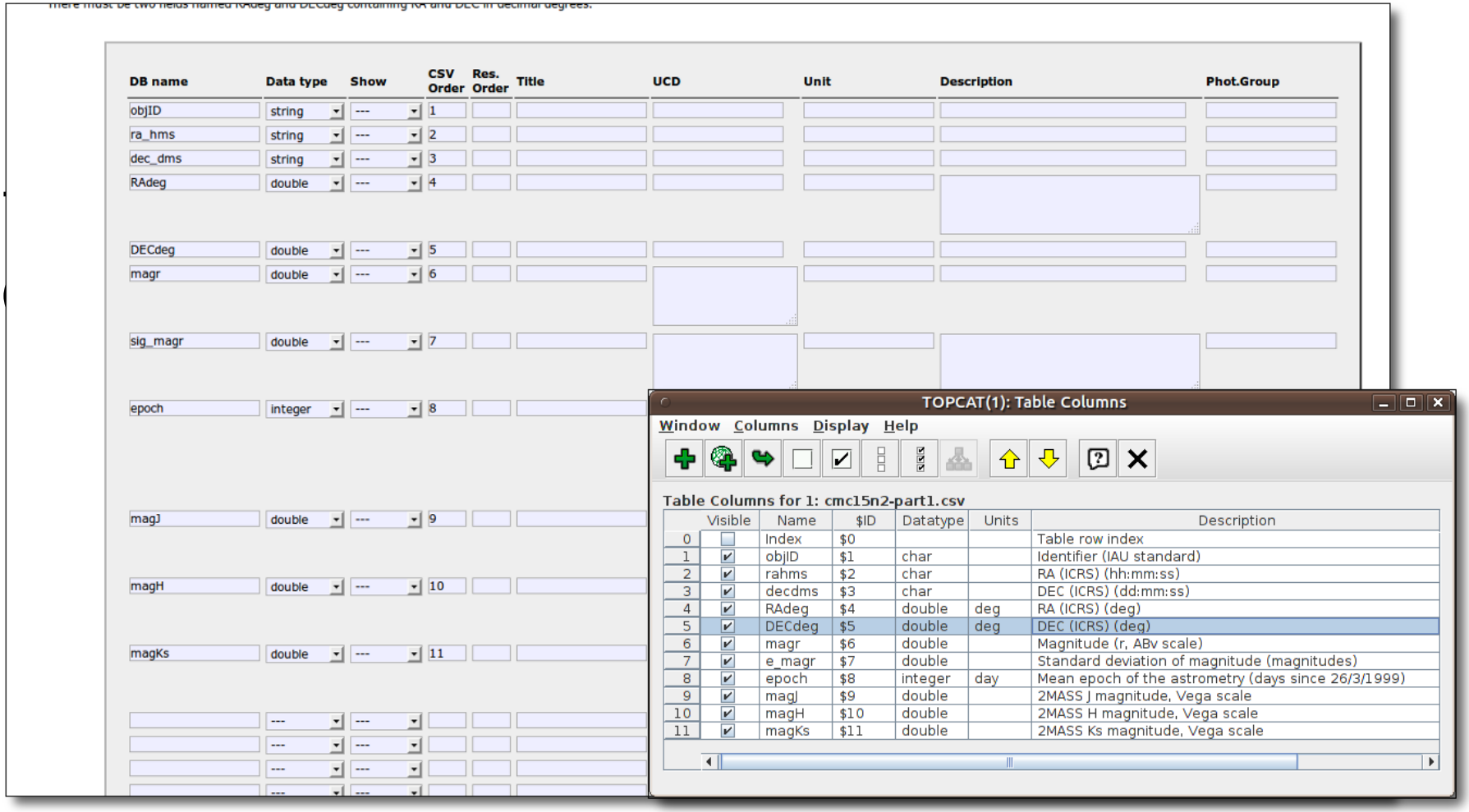

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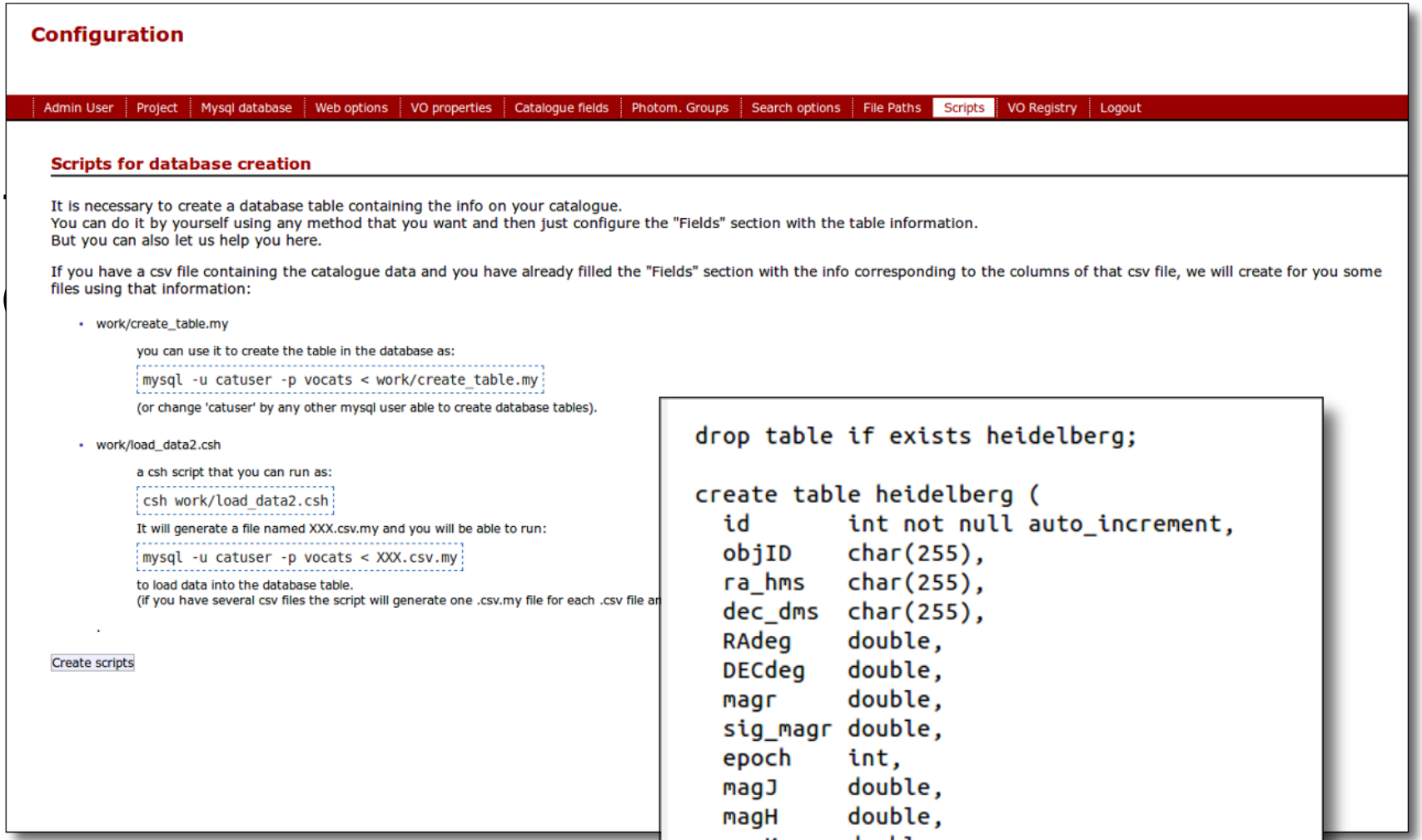
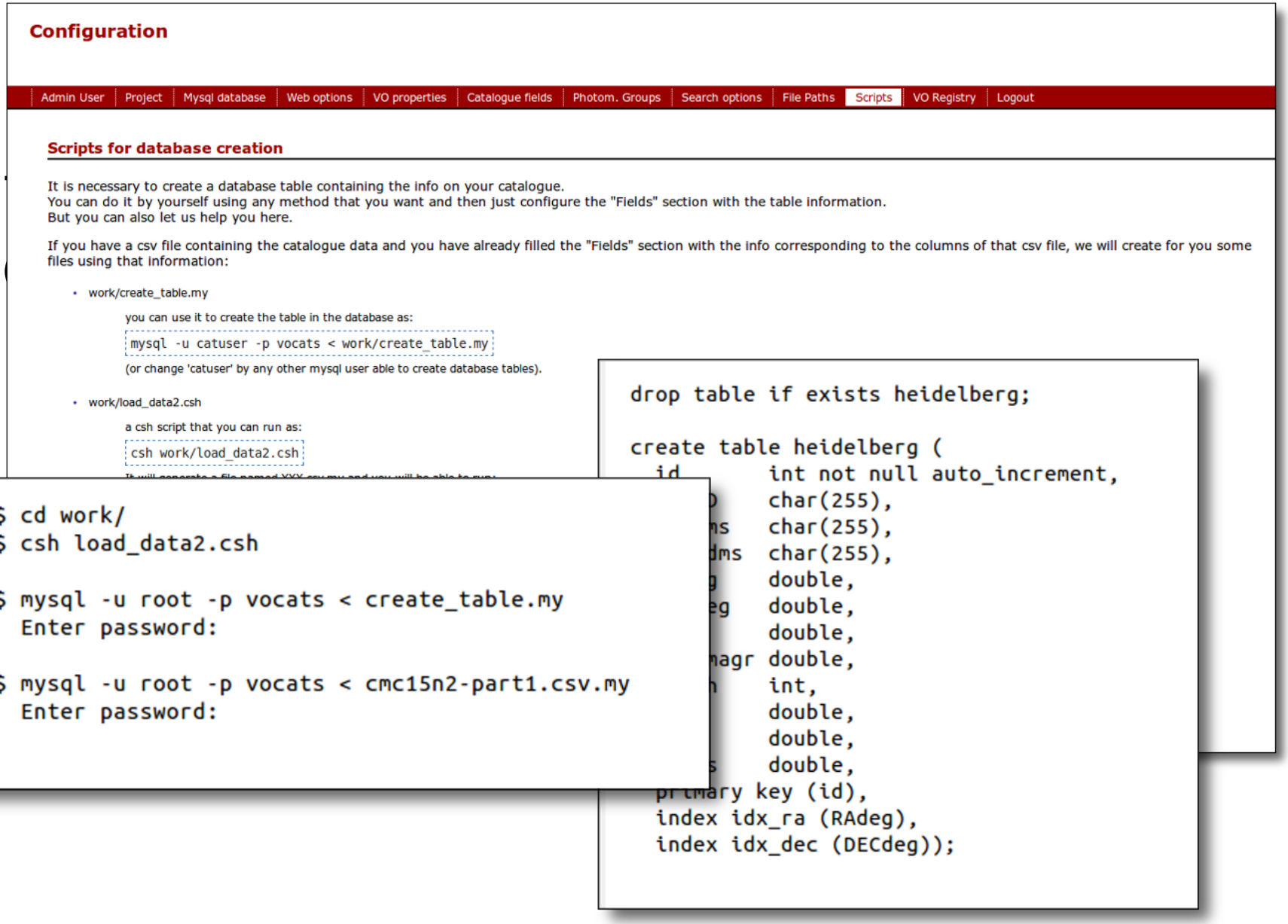



```
drop table if exists heidelberg;

create table heidelberg (
  id       int not null auto_increment,
  objID    char(255),
  ra_hms   char(255),
  dec_dms  char(255),
  RAdeg    double,
  DECdeg   double,
  magr     double,
  sig_magr double,
  epoch    int,
  magJ     double,
  magH     double,
  magKs    double,
  primary key (id),
  index idx_ra (RAdeg),
  index idx_dec (DECdeg));
```

Configuration Example




```
$ cd work/
$ csh load_data2.csh

$ mysql -u root -p vocats < create_table.my
  Enter password:

$ mysql -u root -p vocats < cmc15n2-part1.csv.my
  Enter password:
```

```
drop table if exists heidelberg;

create table heidelberg (
  id        int not null auto_increment,
            char(255),
  ns        char(255),
  dms       char(255),
            double,
  eg        double,
            double,
  nagr      double,
            int,
            double,
            double,
            double,
  primary key (id),
  index idx_ra (RAdeg),
  index idx_dec (DECdeg));
```

Configuration Example

Configuration

Admin User | Project | Mysql database | Web options | VO properties | Catalogue fields | Photom. Groups | Search options | File Paths | Scripts | VO Registry | Logout

Scripts for database creation

It is necessary to create a database table containing the info on your catalogue.
You can do it by yourself using any method that you want and then just configure the "Fields" section with the table information.
But you can also let us help you here.

If you have a csv file containing the catalogue data and you have already filled the "Fields" section with the info corresponding to the columns of that csv file, we will create for you some files using that information:

- work/create_table.my

  you can use it to create the table in the database as:

```
mysql -u catuser -p vocats < work/create_table.my
```

carlos@palenque: ~

File Edit View Search Terminal Help

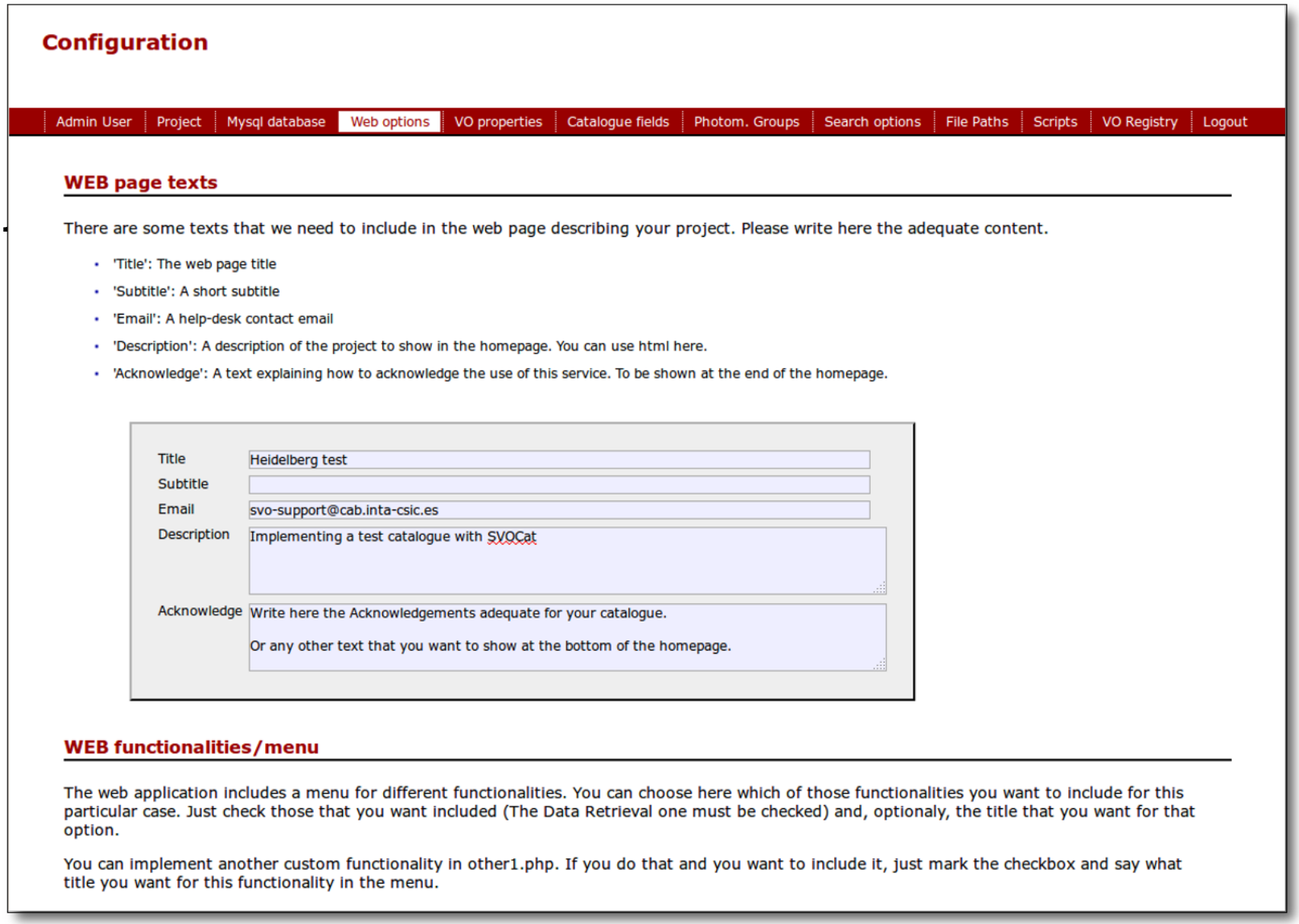
```
mysql> select * from heidelberg limit 15;
+----+-----------------+--------------+--------------+--------------+---------+--------+----------+-------+--------+--------+--------+
| id | objID           | ra_hms       | dec_dms      | RAdeg        | DECdeg  | magr   | sig_magr | epoch | magJ   | magH   | magKs  |
+----+-----------------+--------------+--------------+--------------+---------+--------+----------+-------+--------+--------+--------+
|  1 | 000000.0+125954 | 00:00:0.0176 | 12:59:54.347 | 0.0000733333 | 12.9984 | 15.653 |        0 |   127 | 14.495 | 14.197 | 14.024 |
|  2 | 000000.3+142544 | 00:00:0.3207 | 14:25:44.158 |   0.00133625 | 14.4289 | 17.445 |        0 |   888 | 15.794 | 15.288 |      0 |
|  3 | 000000.3+144506 | 00:00:0.3311 | 14:45:6.309  |   0.00137958 | 14.7518 | 17.301 |        0 |   968 | 16.208 |      0 |      0 |
|  4 | 000000.4+100638 | 00:00:0.4354 | 10:06:38.469 |   0.00181417 | 10.1107 | 15.813 |    0.119 |   613 | 14.424 | 13.922 | 13.855 |
|  5 | 000000.4+110712 | 00:00:0.4516 | 11:07:12.756 |   0.00188167 | 11.1202 | 17.188 |    0.153 |   783 | 15.869 |      0 |      0 |
|  6 | 000000.5+144005 | 00:00:0.5705 | 14:40:5.093  |   0.00237708 | 14.6681 | 14.668 |    0.042 |   798 | 13.534 | 13.197 | 13.105 |
|  7 | 000000.6+143703 | 00:00:0.6209 | 14:37:3.617  |   0.00258708 | 14.6177 | 17.618 |        0 |   968 | 16.294 |      0 |      0 |
|  8 | 000000.6+130420 | 00:00:0.6417 | 13:04:20.696 |   0.00267375 | 13.0724 | 15.724 |    0.144 |   400 | 13.243 |  12.56 | 12.356 |
|  9 | 000000.6+115835 | 00:00:0.6525 | 11:58:35.245 |   0.00271875 | 11.9765 | 15.188 |        0 |   546 | 13.997 | 13.626 | 13.706 |
| 10 | 000000.6+115050 | 00:00:0.6613 | 11:50:50.502 |   0.00275542 | 11.8474 | 16.041 |    0.093 |   546 | 14.526 | 14.003 | 13.828 |
| 11 | 000000.6+111705 | 00:00:0.6766 | 11:17:5.378  |   0.00281917 | 11.2848 | 15.978 |    0.272 |   545 | 14.653 | 14.016 | 13.995 |
| 12 | 000000.7+111300 | 00:00:0.7054 | 11:13:0.442  |   0.00293917 | 11.2168 | 16.025 |    0.104 |   545 | 14.941 | 14.572 | 14.473 |
| 13 | 000000.8+132238 | 00:00:0.8693 | 13:22:38.351 |   0.00362208 | 13.3773 | 15.412 |    0.093 |   640 |  14.01 | 13.595 | 13.493 |
| 14 | 000001.0+103814 | 00:00:1.0067 | 10:38:14.895 |   0.00419458 | 10.6375 | 12.631 |    0.025 |  2493 | 11.613 | 11.327 | 11.282 |
| 15 | 000001.0+134352 | 00:00:1.0237 | 13:43:52.711 |   0.00426542 | 13.7313 | 17.263 |        0 |   881 |   15.5 | 14.643 | 14.611 |
+----+-----------------+--------------+--------------+--------------+---------+--------+----------+-------+--------+--------+--------+
15 rows in set (0.00 sec)

mysql>
```

Configuration Example

1.- Once you have a database, the rest is easy

- Some texts for web page and VO services
- More details about your columns
- Allowed search fields
- etc

Configuration Example



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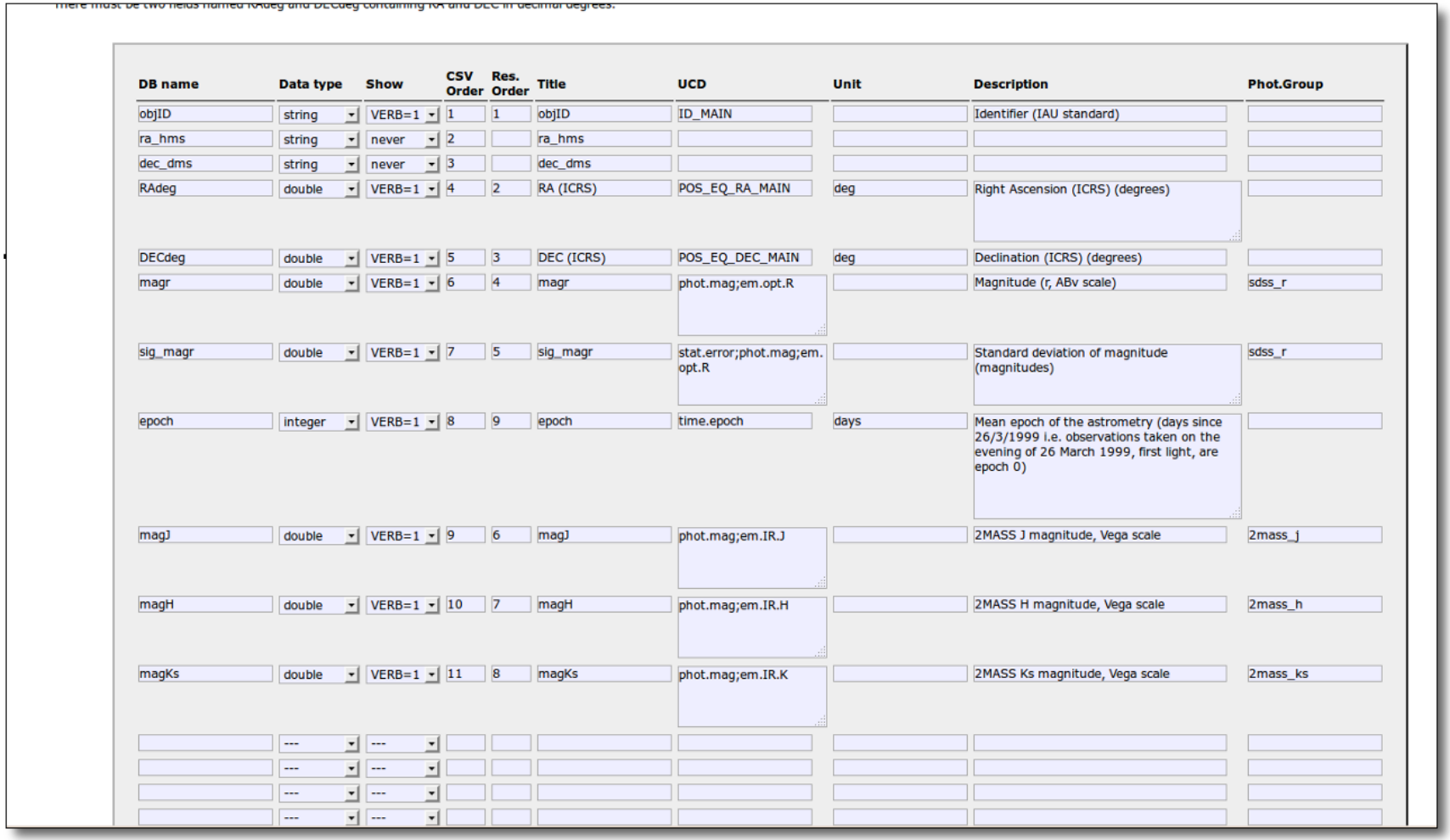

DB name	Data type	Show	CSV Order	Res. Order	Title	UCD	Unit	Description	Phot.Group
objID	string	VERB=1	1	1	objID	ID_MAIN		Identifier (IAU standard)	
ra_hms	string	never	2		ra_hms				
dec_dms	string	never	3		dec_dms				
RAdeg	double	VERB=1	4	2	RA (ICRS)	POS_EQ_RA_MAIN	deg	Right Ascension (ICRS) (degrees)	
DECdeg	double	VERB=1	5	3	DEC (ICRS)	POS_EQ_DEC_MAIN	deg	Declination (ICRS) (degrees)	
magr	double	VERB=1	6	4	magr	phot.mag;em.opt.R		Magnitude (r, ABv scale)	sdss_r
sig_magr	double	VERB=1	7	5	sig_magr	stat.error;phot.mag;em.opt.R		Standard deviation of magnitude (magnitudes)	sdss_r
epoch	integer	VERB=1	8	9	epoch	time.epoch	days	Mean epoch of the astrometry (days since 26/3/1999 i.e. observations taken on the evening of 26 March 1999, first light, are epoch 0)	
magJ	double	VERB=1	9	6	magJ	phot.mag;em.IR.J		2MASS J magnitude, Vega scale	2mass_j
magH	double	VERB=1	10	7	magH	phot.mag;em.IR.H		2MASS H magnitude, Vega scale	2mass_h
magKs	double	VERB=1	11	8	magKs	phot.mag;em.IR.K		2MASS Ks magnitude, Vega scale	2mass_ks
	---	---							
	---	---							
	---	---							
	---	---							

Configuration Example

1.- Once you have a database, the rest is easy

- Some texts for web page and VO services
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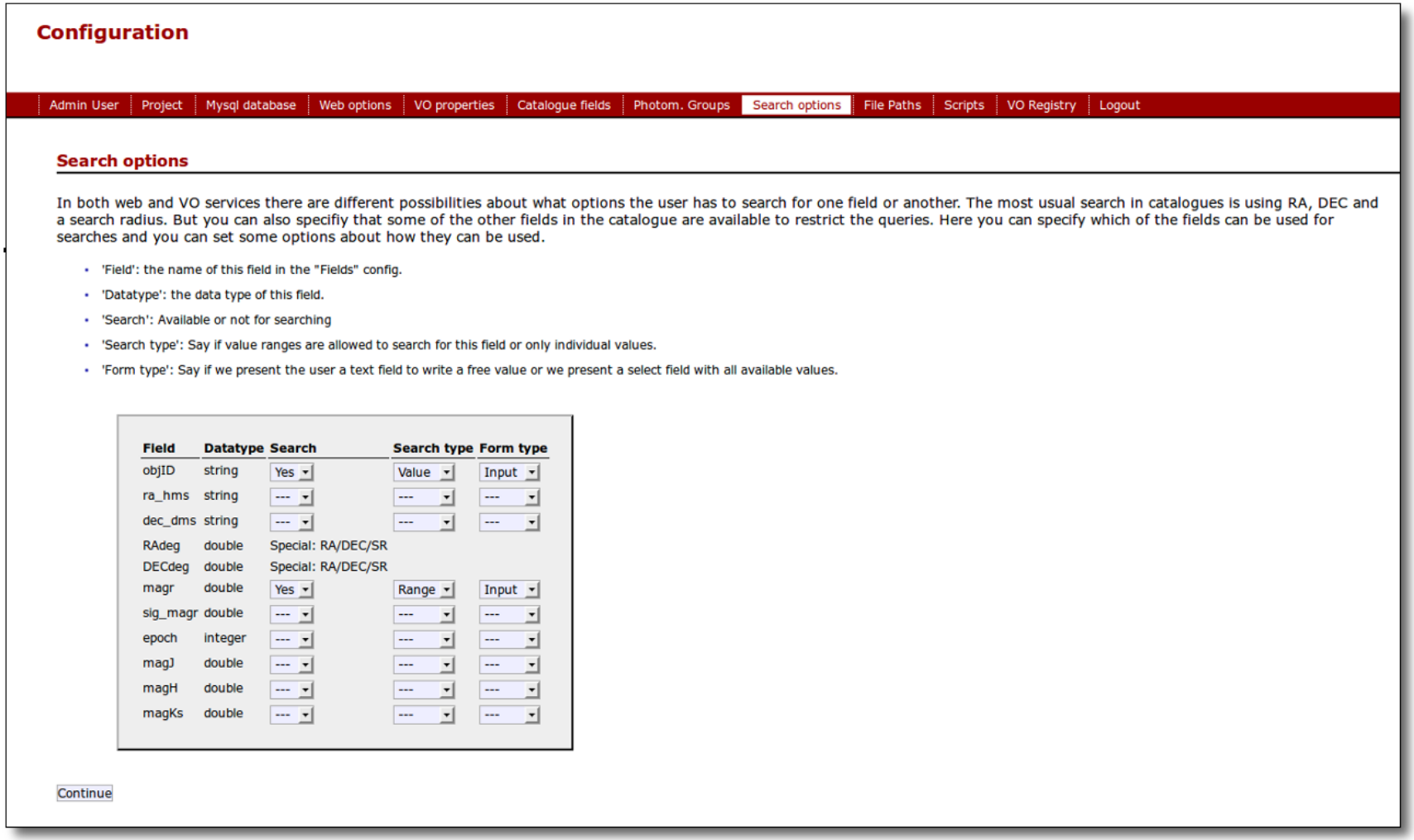
- etc

Configuration Example



Configuration

Admin User | Project | Mysql database | Web options | VO properties | Catalogue fields | Photom. Groups | Search options | File Paths | Scripts | VO Registry | Logout

Search options

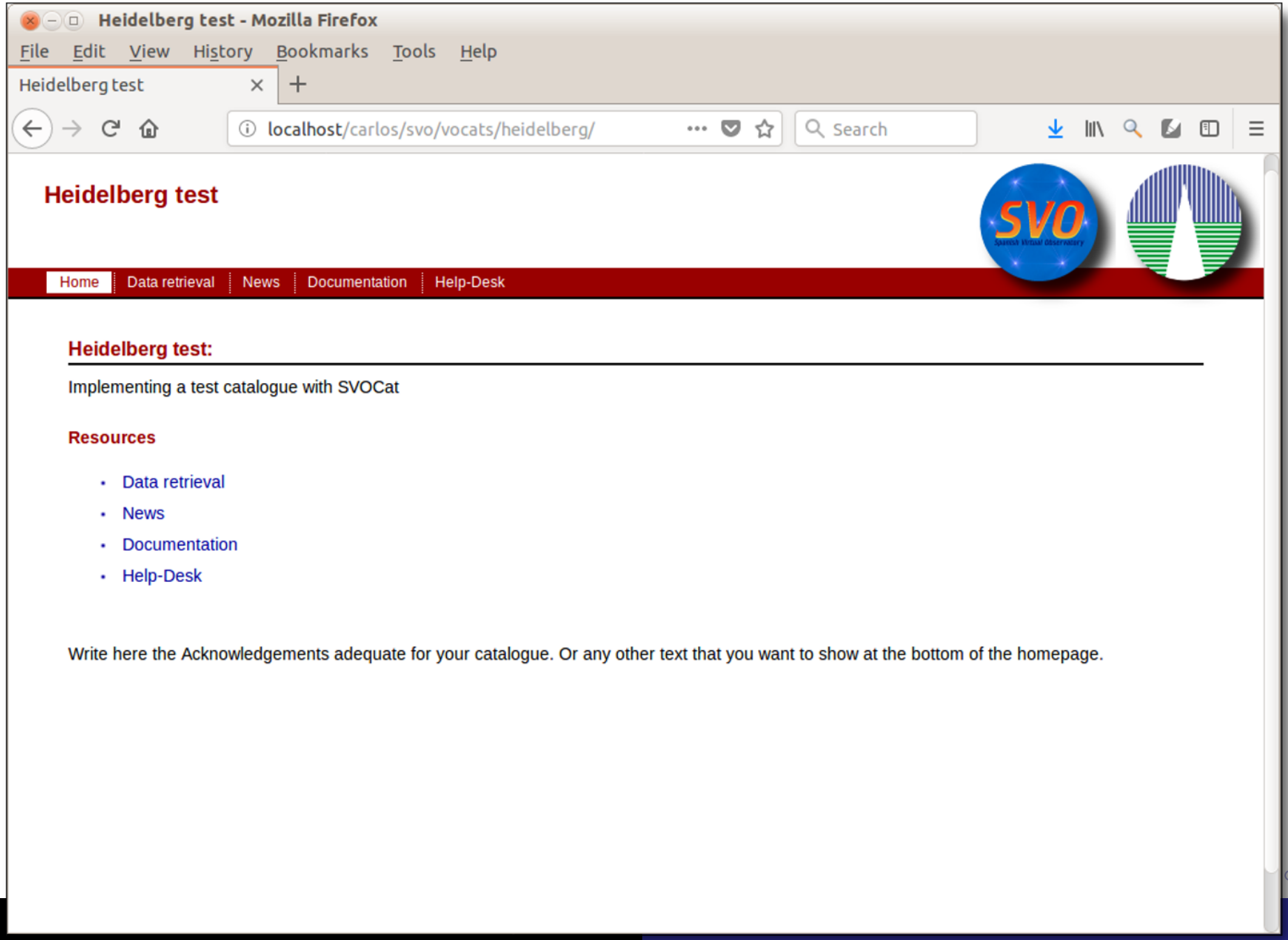
In both web and VO services there are different possibilities about what options the user has to search for one field or another. The most usual search in catalogues is using RA, DEC and a search radius. But you can also specifiy that some of the other fields in the catalogue are available to restrict the queries. Here you can specify which of the fields can be used for searches and you can set some options about how they can be used.

- 'Field': the name of this field in the "Fields" config.
- 'Datatype': the data type of this field.
- 'Search': Available or not for searching
- 'Search type': Say if value ranges are allowed to search for this field or only individual values.
- 'Form type': Say if we present the user a text field to write a free value or we present a select field with all available values.

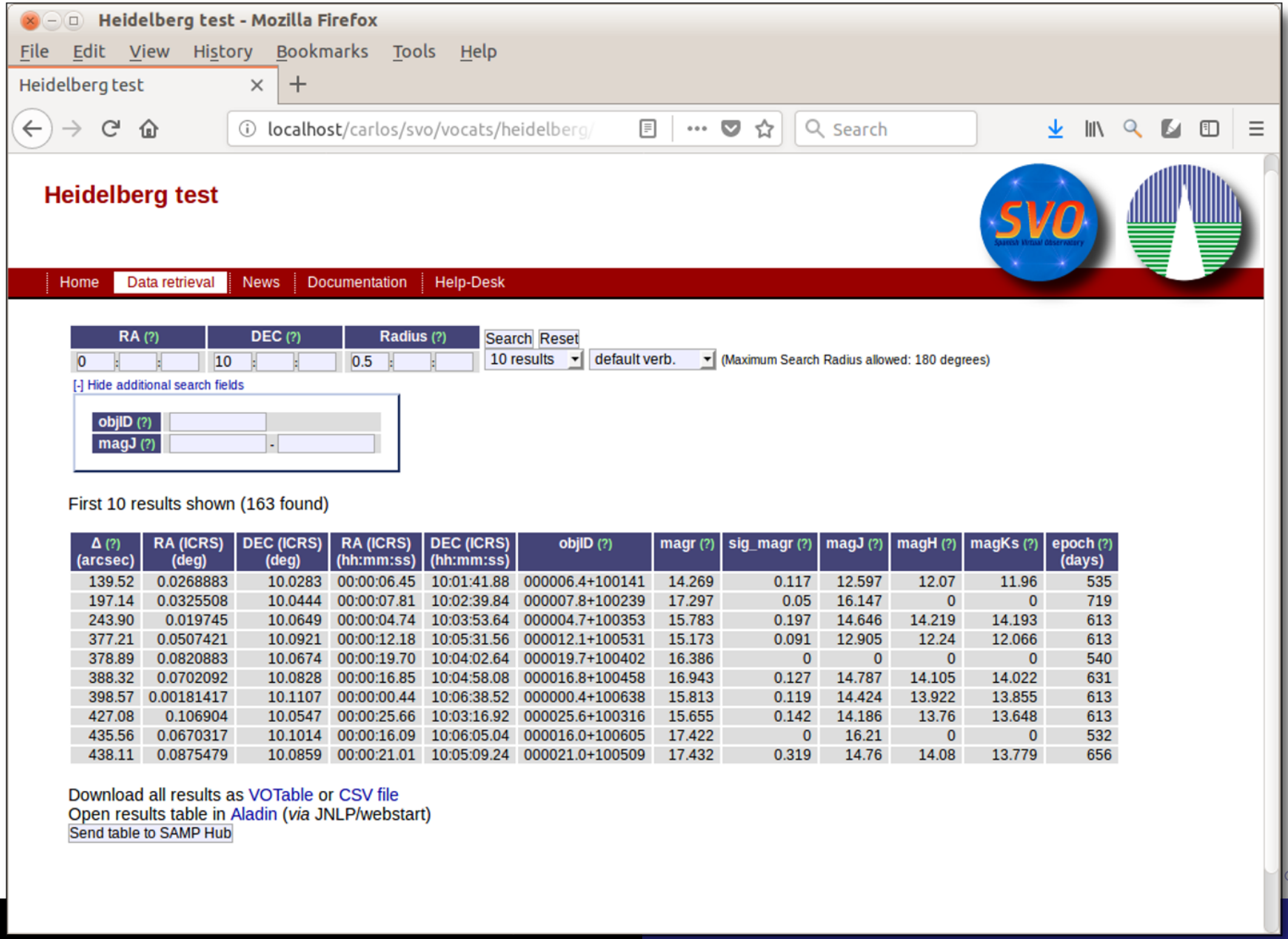
Field	Datatype	Search	Search type	Form type
objID	string	Yes	Value	Input
ra_hms	string	---	---	---
dec_dms	string	---	---	---
RAdeg	double	Special: RA/DEC/SR		
DECdeg	double	Special: RA/DEC/SR		
magr	double	Yes	Range	Input
sig_magr	double	---	---	---
epoch	integer	---	---	---
magJ	double	---	---	---
magH	double	---	---	---
magKs	double	---	---	---

Continue

Done!

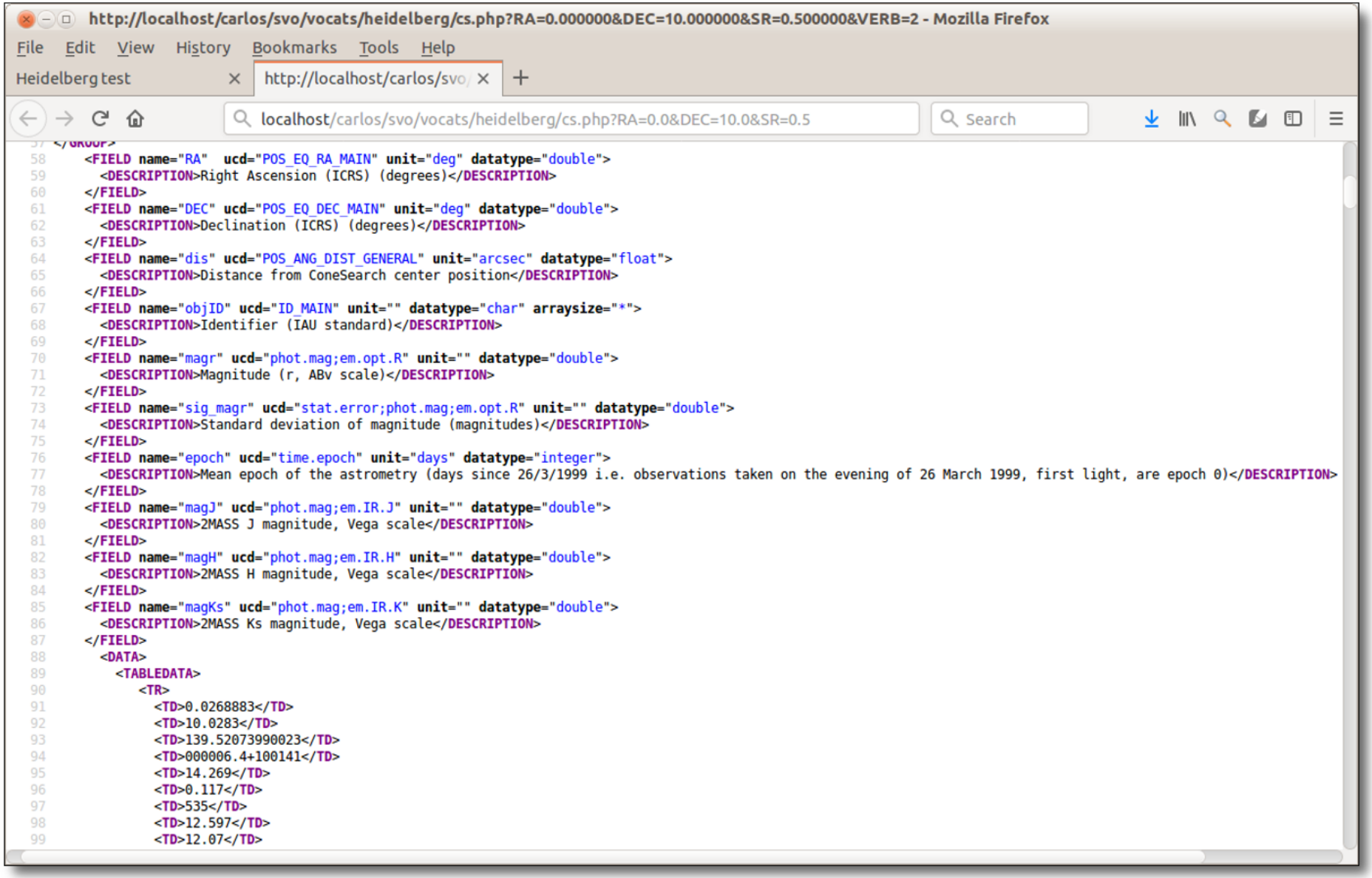

Heidelberg test - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Heidelberg test
localhost/carlos/svo/vocats/heidelberg/
Search
Heidelberg test
Home
Data retrieval
News
Documentation
Help-Desk
Heidelberg test:
Implementing a test catalogue with SVOCat
Resources
Data retrieval
News
Documentation
Help-Desk
Write here the Acknowledgements adequate for your catalogue. Or any other text that you want to show at the bottom of the homepage.

Done!



Δ (?) (arcsec)	RA (ICRS) (deg)	DEC (ICRS) (deg)	RA (ICRS) (hh:mm:ss)	DEC (ICRS) (hh:mm:ss)	objID (?)	magr (?)	sig_magr (?)	magJ (?)	magH (?)	magKs (?)	epoch (?) (days)
139.52	0.0268883	10.0283	00:00:06.45	10:01:41.88	000006.4+100141	14.269	0.117	12.597	12.07	11.96	535
197.14	0.0325508	10.0444	00:00:07.81	10:02:39.84	000007.8+100239	17.297	0.05	16.147	0	0	719
243.90	0.019745	10.0649	00:00:04.74	10:03:53.64	000004.7+100353	15.783	0.197	14.646	14.219	14.193	613
377.21	0.0507421	10.0921	00:00:12.18	10:05:31.56	000012.1+100531	15.173	0.091	12.905	12.24	12.066	613
378.89	0.0820883	10.0674	00:00:19.70	10:04:02.64	000019.7+100402	16.386	0	0	0	0	540
388.32	0.0702092	10.0828	00:00:16.85	10:04:58.08	000016.8+100458	16.943	0.127	14.787	14.105	14.022	631
398.57	0.00181417	10.1107	00:00:00.44	10:06:38.52	000000.4+100638	15.813	0.119	14.424	13.922	13.855	613
427.08	0.106904	10.0547	00:00:25.66	10:03:16.92	000025.6+100316	15.655	0.142	14.186	13.76	13.648	613
435.56	0.0670317	10.1014	00:00:16.09	10:06:05.04	000016.0+100605	17.422	0	16.21	0	0	532
438.11	0.0875479	10.0859	00:00:21.01	10:05:09.24	000021.0+100509	17.432	0.319	14.76	14.08	13.779	656

Done!

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More

- SVOCat 2.0
  - more configuration options
  - including spectra
  - datalink VO protocol
  - *not well documented (yet)*
- myspec/myimage
  - implemented in java
  - for spectra, images
  - SSA,SIA protocols
- Available on Friday, if you are interested.

THANK YOU!