

# VAPE

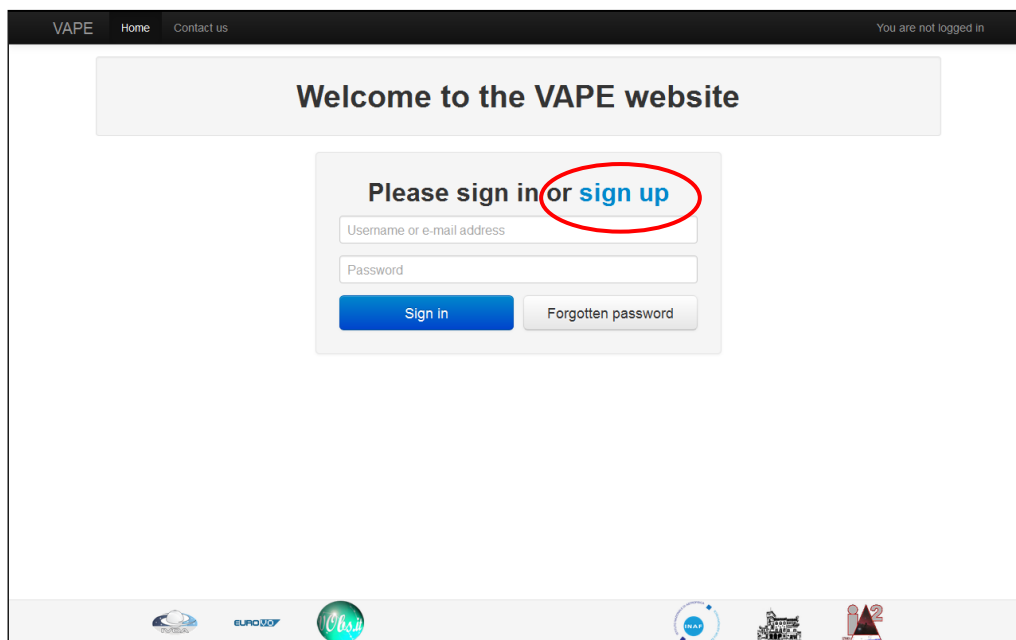
## Virtual observatory Aided Publishing for Education

<http://ia2-edu.oats.inaf.it:8080/vape>

VAPE is an application for the publication of educational data in the Virtual Observatory (VO). VAPE has been developed by IA2 (<http://ia2.oats.inaf.it>). Thanks to VAPE, institutes managing educational telescopes can publish their data in the VO without facing the complexity of (more complete) professional tools. The creation of an educational data archive will a) provide teachers performing observations with an educational telescope to easily store and access their observations, b) make observations available to teachers that have otherwise no access to a telescope. An added advantage of the publication in VO is the availability of many free tools for displaying and/or analyzing data.

The main steps for the service generation and data publication are: a) user (institute) registration, b) telescope(s) and instrument(s) registration, c) insertion of the information about the service to be linked to the telescope and d) the submission of a test file. After service generation it will be possible to proceed with image publication and data querying through VO tools.

**Step 1: Register the institute** (e.g. Astronomical Observatory of ...) through *sign up*.



The screenshot shows the VAPE website interface. At the top, there is a navigation bar with 'VAPE', 'Home', and 'Contact us' links, and a status indicator 'You are not logged in'. The main content area features a large grey box with the text 'Welcome to the VAPE website'. Below this is a central white box with the heading 'Please sign in or sign up'. The 'or sign up' text is circled in red. Underneath the heading are two input fields: 'Username or e-mail address' and 'Password'. Below the input fields are two buttons: a blue 'Sign in' button and a grey 'Forgotten password' button. At the bottom of the page, there is a footer with several logos, including ESO, ESO/ESO, OAS, and IA2.

Insert the requested information in the registration window. Attention: the *username* can not be modified.

VAPE Home Contact us You are not logged in

### Please provide the necessary data

<input type="text" value="Arthur Dent"/>	
<input type="text" value="Osservatorio Astronomico Galassia di Andromeda"/>	
<input type="text" value="OA_M31"/>	
<input type="password" value="*****"/>	<input type="password" value="*****"/>
<input type="text" value="arthur.dent@oa-m31.and"/>	<input type="text" value="arthur.dent@oa-m31.and"/>
<input type="text" value="Pianeta 2014-1b, Braccio a Spirale 2, Andromeda"/>	
<input type="text" value="+00) 123 456 789"/>	
<input type="button" value="Sign up"/> <input type="button" value="Cancel"/>	

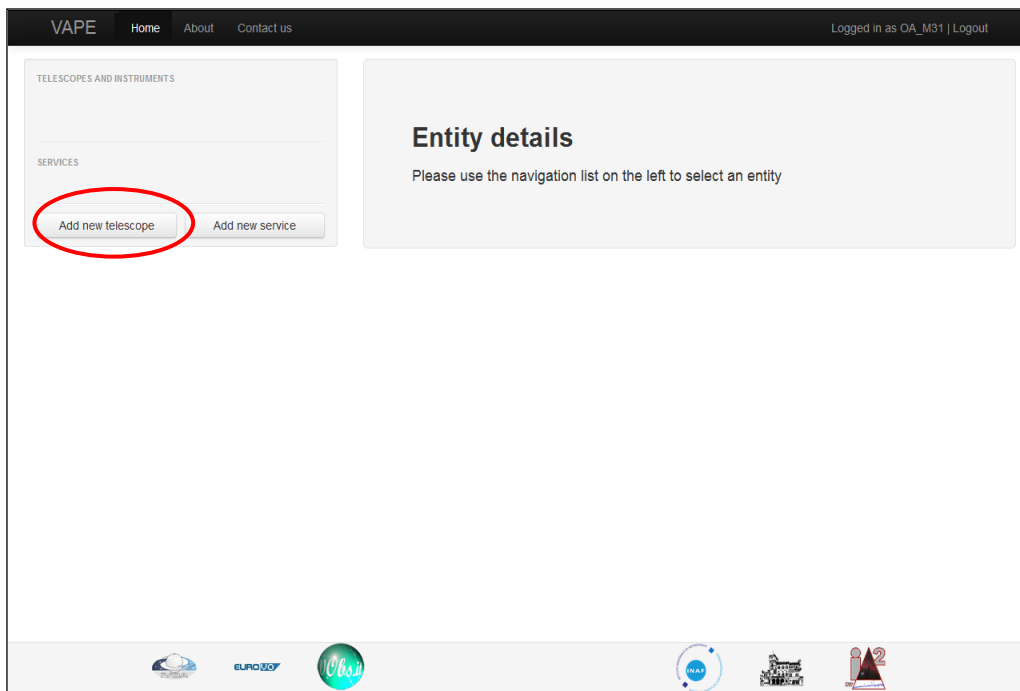
Send the information and wait for the confirmation e-mail. After having received the confirmation e-mail, you may sign-in for the first time. By clicking on the username in the top right corner of the window you will open the *User administrator page*, where you will be able to modify/save your own data.

VAPE Home Contact us Logged in as OA\_M31 | Logout

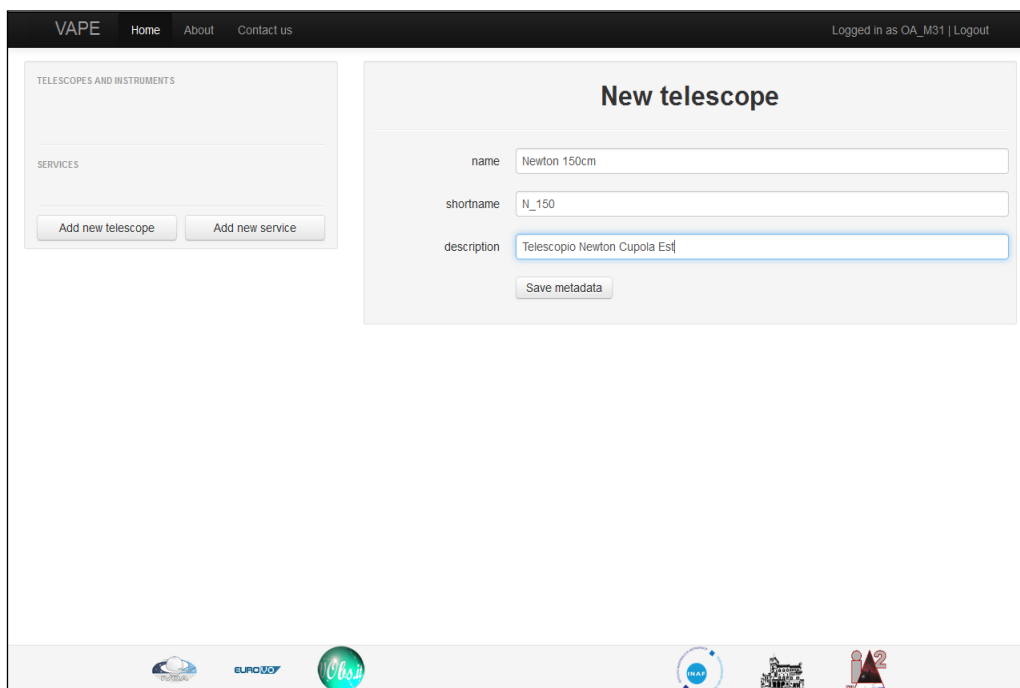
### User administration page

supervisor	<input type="text" value="Arthur Dent"/>
fullname	<input type="text" value="Osservatorio Astronomico Galassia di Andromeda"/>
username	<input type="text" value="OA_M31"/>
email	<input type="text" value="giulia.lafrate@gmail.com"/>
address	<input type="text" value="Pianeta 2014-1b, Braccio a Spirale 2, Andromeda"/>
telephone	<input type="text" value="+00) 123 456 789"/>
<input type="button" value="Save metadata"/> <input type="button" value="Change password"/> <input type="button" value="Cancel"/>	

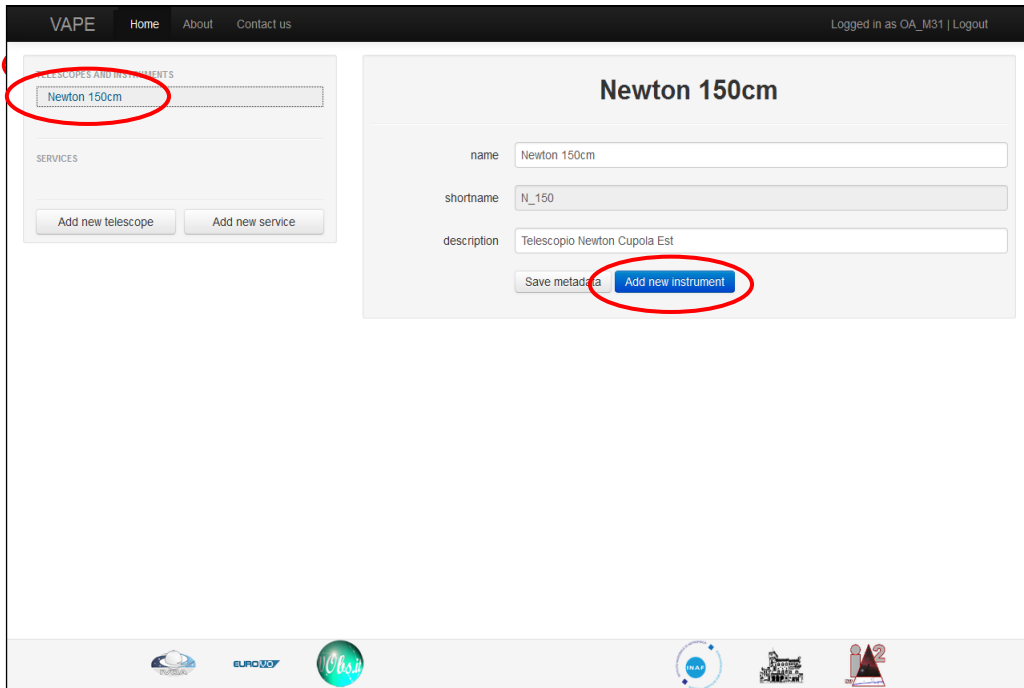
**Step 2: add a new telescope.** In the VAPE main window select *Add new telescope*.



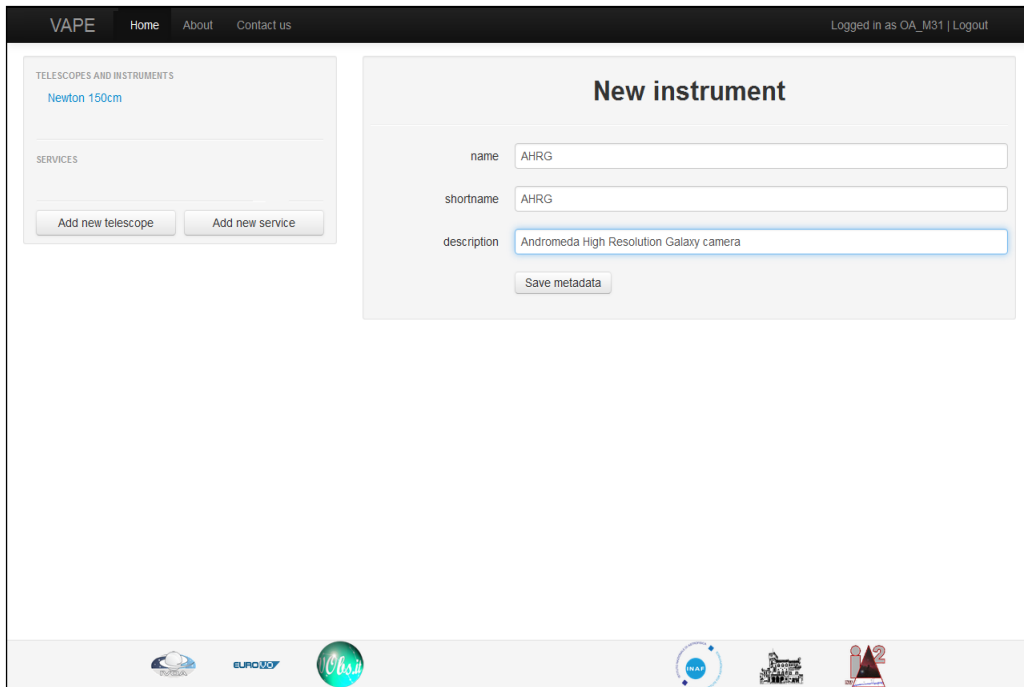
Insert the requested information. Attention: the *shortname* can not be modified.



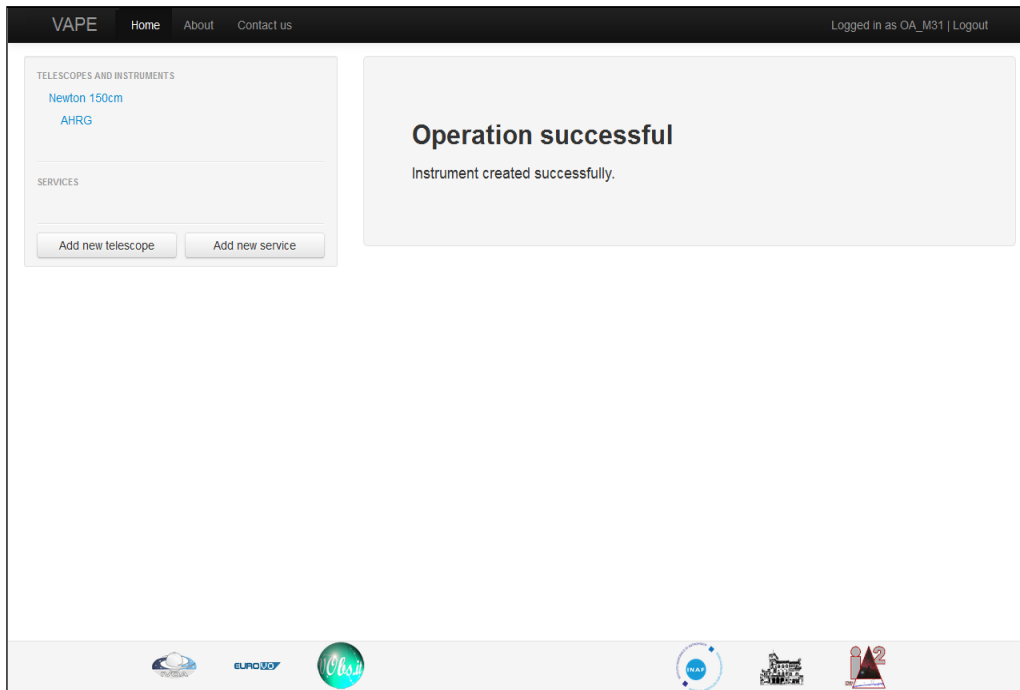
**Step 3: add a new instrument.** A telescope can have more than one instrument, e.g. a camera for imaging and a spectrograph. The telescope created in step 2 appears in the left column of VAPE, by selecting it, it is possible to add a new instrument through *Add new instrument*.



Insert the requested information and save them through *Save metadata*. Attention: the *shortname* can not be modified.



At the end a window with the confirmation of the instrument addition appears.



**Step 4: setting up the service.** In the left column select *Add new service* and insert the requested information.

- *VO Title*: title of the service, with clear references to institute, telescope, instrument, aim (educational), etc;
- *VAPE Shortname* and *VO Shortname* can be the same;
- *VO Description*: detailed description of the educational activity, with information on methods, instruments, user (students, teachers, ...), etc.;
- *protocolType*: at the moment only SIAP (simple image access protocol) is available, in the future SSAP (simple spectra access protocol) will be added;
- *VO Subject*: some keywords of the service, separated by "#";
- *VO ReferenceUrl*: web site with the description of the educational activity.

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TELESCOPES AND INSTRUMENTS  
[Newton 150cm](#)  
[AHRG](#)

SERVICES

### New service

VO Title:

VAPE Shortname:

VO Shortname:

VO Description:

Protocol Type:

VO Subject:

VO Reference URL:

Connected instruments:  AHRG

Save the information by clicking on *Save metadata*. VAPE moves to the next window where a test FITS file is requested in order to proceed with the service creation.

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TELESCOPES AND INSTRUMENTS  
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SERVICES  
[OA\\_M31 AHRG educational siap service](#)

### OA\_M31 AHRG educational siap service

[Service metadata](#) [Service schema descriptor](#) [History of uploaded files](#)

At this point you have to verify that your FITS files are acceptable for publication in the VO through VAPE and, if not, to modify them according to the rules below:

- 1) verify with FITS Verify ([http://fits.gsfc.nasa.gov/fits\\_verify.html](http://fits.gsfc.nasa.gov/fits_verify.html)) that files fit the standards of FITS format
- 2) if the following keywords are not already present, insert them in the FITS header
 

OBJECT	observed object
OBJ_TYPE	object type: "astro" for stars, deep sky, etc; "sun" for the Sun; "planetary" for the Solar System objects

OBSERVER	observer (you or the class)
TELESCOP	telescope used for observations – this keyword must match the telescope <i>shortname</i> previously inserted in VAPE
INSTRUME	instrument used for observations – this keyword must match the instrument <i>shortname</i> previously inserted in VAPE and linked to the service
INSTITUT	institute performing the observations
PURPOSE	“ <i>edu</i> ” in order to tag observations as educational

Once your FITS files satisfy the above requirements, you may proceed uploading the test file. Specify for each of the following variables RA, DEC, Date, Image ID and Pixel Scale the corresponding keyword of your file header. If needed modify the information using arithmetical operations and/or constants.

Tips&Tricks: in order to perform arithmetical operations insert the desired function (from the list menu *functions*) and then insert inside it the keywords (from the list menu *Fits keys*) and/or the constants (from the list menu *Constant*). To delete a field use *Undo*.

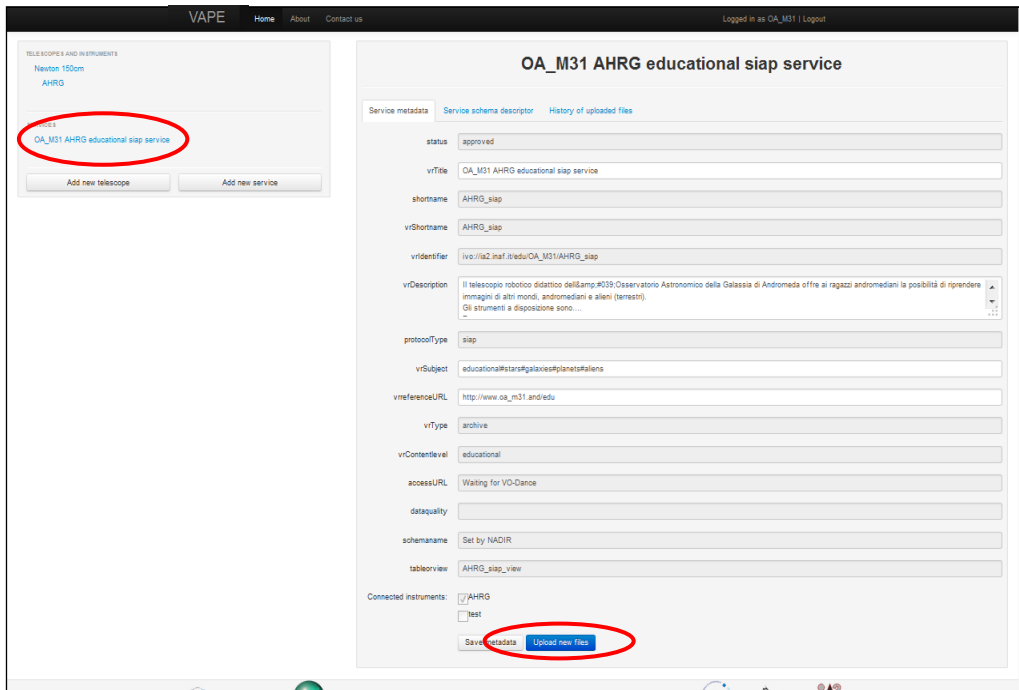
The screenshot shows the VAPE web interface. The top navigation bar includes 'VAPE', 'Home', 'About', 'Contact us', and 'Logged in as OA\_M31 | Logout'. The main content area is titled 'OA\_M31 AHRG educational siap service' and has three tabs: 'Service metadata', 'Service schema descriptor', and 'History of uploaded files'. The 'Service metadata' tab is active, showing several input fields for service configuration:

- RA [deg] = OBJECTRA
- DEC [deg] = OBJECTDEC
- Date [MJD] = ( JD - 2400000.5 )
- Image ID = OBJECT
- Pixel Scale - X [deg/px] = ( PIXSCALE / 3600 )
- Pixel Scale - Y [deg/px] = ( PIXSCALE / 3600 )

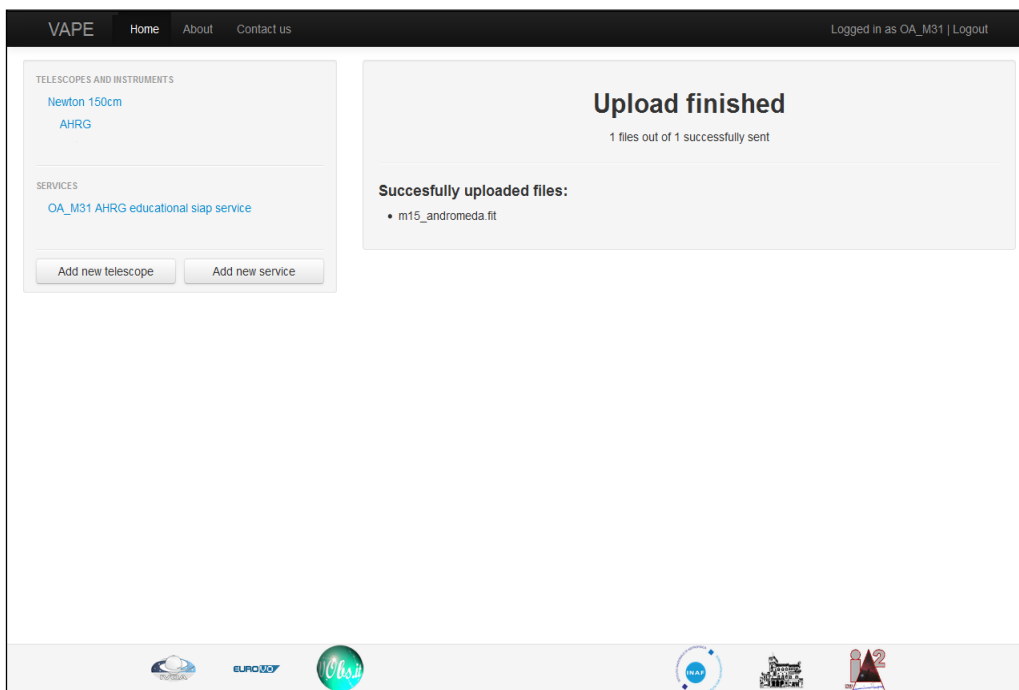
Each input field has a dropdown menu for 'Fits keys', 'Functions', 'Constant', and 'Undo'.

At the end save the metadata: a confirmation page appears. An email message will confirm the activation of the service.

**Step 5: upload the images to be published.** Select your service in the VAPE main window. A window will pop-up where you will be able to modify title, description, keywords and reference web site of the service. In order to upload new images select *Upload new files*.



A pop-up window will confirm the end of the upload procedure.



During the upload, files are renamed according to the schema OBJECT\_OBS\_DATE.fits and a new keyword with the original file name is added to the file header.

N.B.: when a service is approved its state changes from *requested* to *approved*. Even if approved by VAPE, the service has to be registered in the VO registries before images become available in the VO. Wait until the URL appears in the field *accessURL*.



**Step 6: access the images.** Images published with VAPE enter the Virtual Observatory – VO (<http://www.euro-vo.org>) and are accessible through VO tools, e.g. Aladin (free download from <http://aladin.u-strasbg.fr>).

Some examples on how to use Aladin for educational purposes are available on the web site <http://www.as.oats.inaf.it> in the download section.

How to access the images of a specific service (e.g. SVAS of INAF OATs) using Aladin:

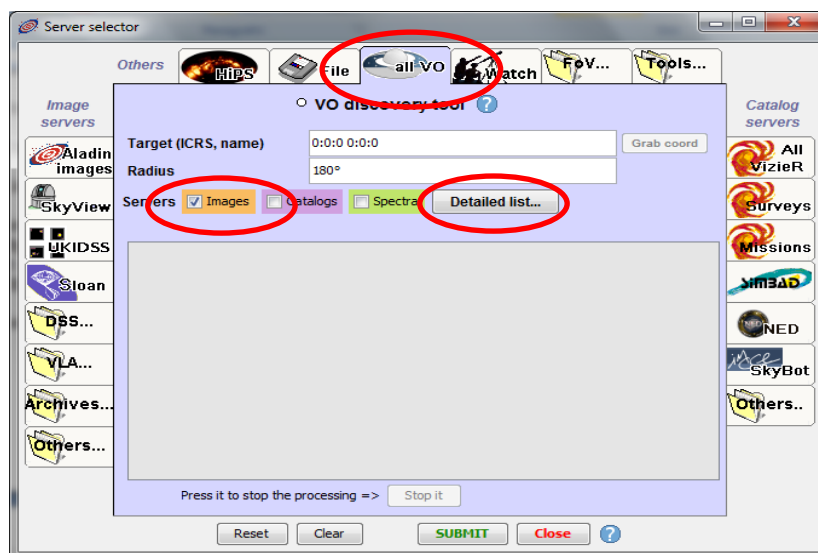
Open Aladin

File -> Load astronomical image -> Aladin image server

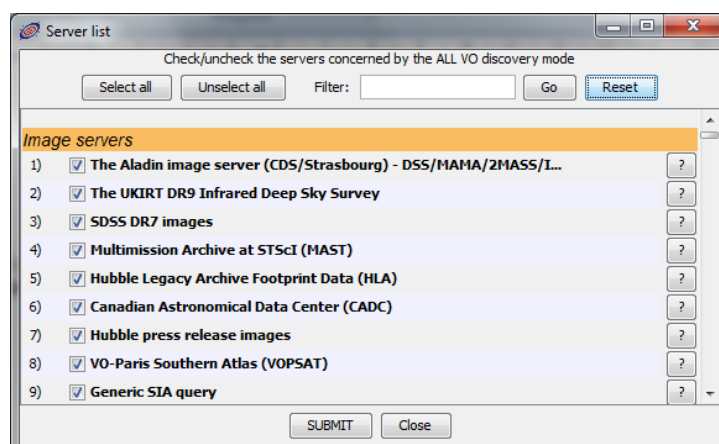
Select the *all\_VO* tab and insert in the field *Object* the name or the coordinates of the object you want to search for.

In order to get all images published by a specific service insert *0:0:0 0:0:0* in the field *Object* and *180°* in the field *Radius*.

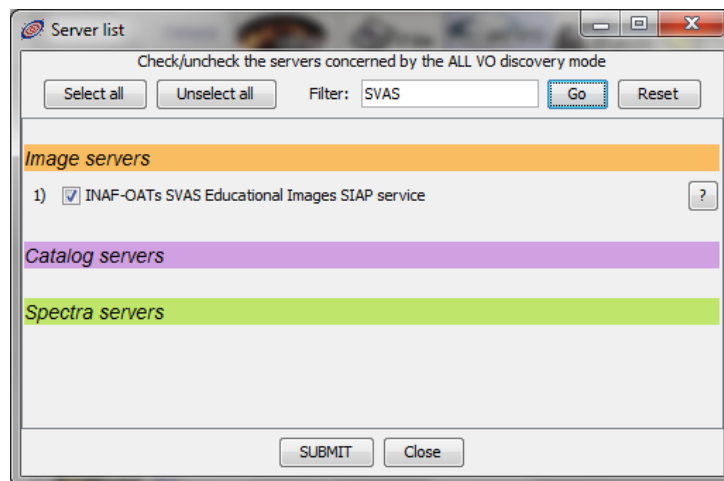
Select *Images* only (deselect *Catalogs* and *Spectra*) and open the *Detailed list*.



A window with the list of all available services which have images of the searched object appears.

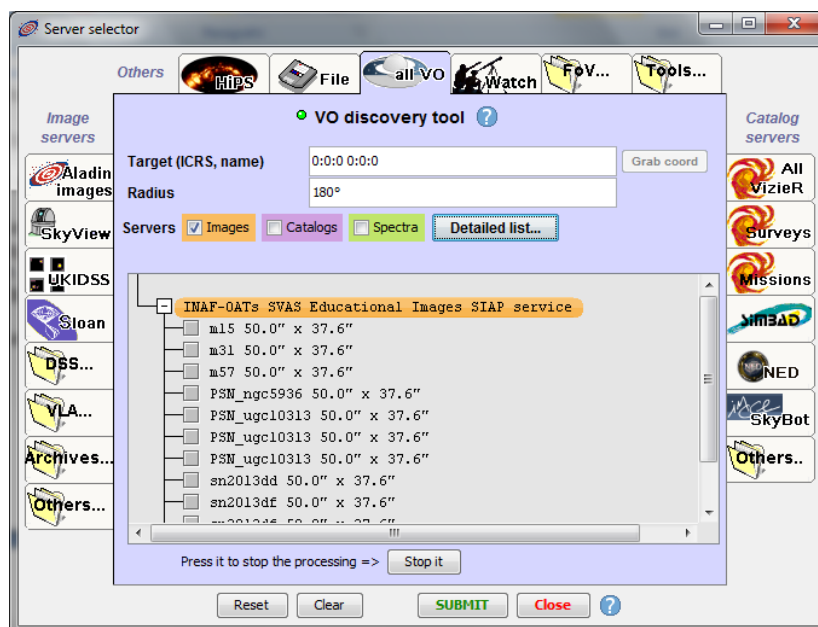


Insert the name (or a part of it) of the desired service (i.e. SVAS) in the field *Filter* and click *Go*.

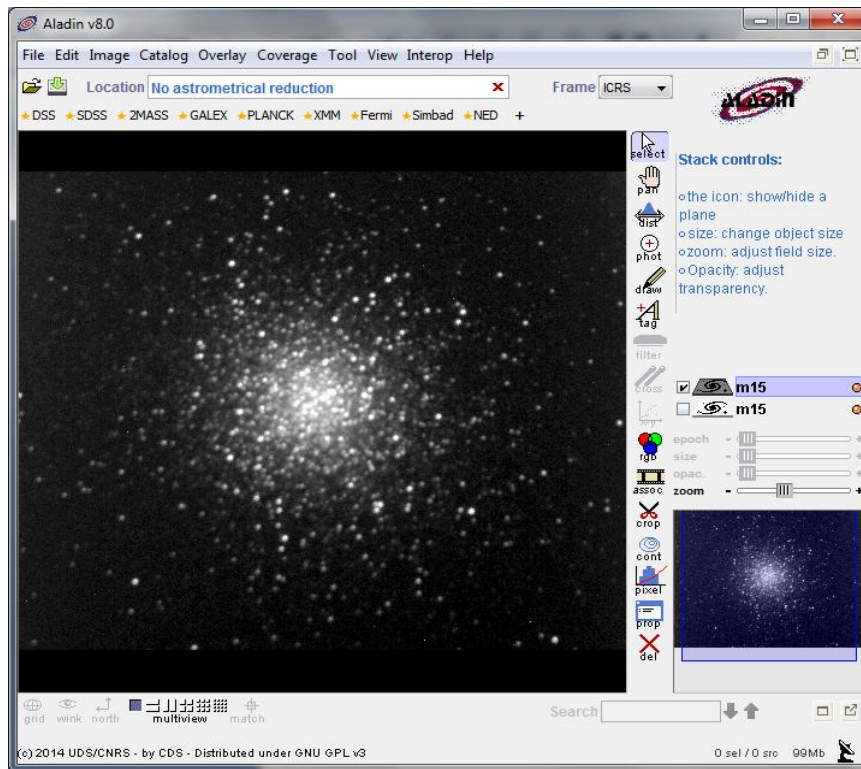


The button “?” shows the information about that service inserted in VAPE. Select the service, submit and close the window.

The list of images provided by the selected service appears in the server selector window.



Double click on a image name in order to visualize the information saved in the file header. Select an image and submit to load it in Aladin.



For information, problems, questions, suggestions, bug report, etc. write to:  
[ia2-vape@oats.inaf.it](mailto:ia2-vape@oats.inaf.it)