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 (<u>http://ia2.oats.inaf.it</u>). 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.

VAPE	Home Contact	us				You are not logged in
		1	Welcome to tl	he VAPE website)	
			Please sig	n in or sign up		
			Password Sign in	Forgotten password		
		EURO III	Obor			

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

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 t	he necessary data	
	Arthur Dent Osservatorio Astronomico Galassia di Andromeda		
	OA_M31		
	arthur dent@oa-m31 and	arthur dent@oa-m31 and	
	Planeta 2014-1b, Braccio a Spirale 2, Andromeda		
	(+00) 123 456 789		
	Sign up	Cancel	
\sim			
		(<u>e</u>)	WICKET AJAX DEBUG

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	μ	ogg d in as OA_M31 Logout
	User administration page	
supervisor	Arthur Dent	
fullname	Osservatorio Astronomico Galassia di Andromeda	
username	OA_M31	
email	giulia.lafrate@gmail.com	
address	Pianeta 2014-1b, Braccio a Spirale 2, Andromeda	
telephone	(+00) 123 456 789	
	Save meladata Change password Cancel	
		▲ 3
EURO 207		

<u>Step 2</u>: add a new telescope. In the VAPE main window select Add new telescope.

VAPE Home About Contact us	Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS	
SERVICES Add new telescope Add new service	Entity details Please use the navigation list on the left to select an entity
CIPOZET (160)	<u>به</u>

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

VAPE Home About Contact us			Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS		New telesco	pe
SERVICES	name Ne	ewton 150cm	
	shortname N_	150	
Add new telescope Add new service	description Te	lescopio Newton Cupola Est	
	S	ave metadata	

<u>Step 3</u>: **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*.

VAPE Home About Contact us			Logged in as OA_M31 Logout
Newton 150cm		Newton 150cm	
SERVICES	name	Newton 150cm	
Add new telescope	shortname	N_150	
Add new telescope Add new service	description	Telescopio Newton Cupola Est	
		Save metadata Add new instrument	
eurozor Vilo		۱	

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

VAPE Home About Contact us			Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS Newton 150cm		New instrument	
SERVICES	name	AHRG	
Add new telescope Add new service	shortname	AHRG	
	description	Andromeda High Resolution Galaxy camera	
ELEO ELEO			2

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

VAPE Home About Contact us	Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS Newton 150cm AHRG	Operation successful
SERVICES	Instrument created successfully.
Add new telescope Add new service	
	(e) 💒 🕌

<u>Step 4</u>: setting up the service. In the left column select Add new service and insert the requested information.

- *Title VO*: title of the service, with clear references to institute, telescope, instrument, aim (educational), etc;
- Shortname VAPE and Shortname VO can be the same;
- *Description VO*: 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;
- Subject VO: some keywords of the service, separated by "#";
- *ReferenceUrl VO*: web site with the description of the educational activity.

VAPE Home About Contact us		Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS Newton 150cm AHRG		New service
	vrTitle	OA_M31 AHRG educational siap service
SERVICES	shortname	AHRG_slap
Add new telescope Add new service	vrShortname	AHRG_siap
	vrDescription	Il telescopio robotico didattico dell'Osservatorio Astronomico della Galassia di Andromeda offre al ragazzi andromediani la posibilità di riprendere immagini di altri mondi, andromediani e alieni (terrestri). Gli strumenti a disposizione sono ecc ecc
	protocolType	siap
	vrSubject	educational#stars#galaxies#planets#aliens
	vrreferenceURL	http://www.oa_m31.and/edu
	Connected instruments:	2 AHRG
		Save metadata
ELROVOT UM)	🥌 🚠

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.

VAPE Home About Contact us	Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS Newton 150cm AHRG	OA_M31 AHRG educational siap service
SERVICES OA_M31 AHRG educational slap service	Service metadata Service schema descriptor History of uploaded files
Add new telescope Add new service	
EUROZOT (UM	

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 (<u>http://fits.gsfc.nasa.gov/fits_verify.html</u>) 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 shortname previously inserted in VAPE
INSTRUME	instrument used for observations – this keyword must match
	the instrument shortname previously inserted in VAPE and
	linked to the service
INSTITUT	institute performing the observations
PURPOSE	"edu" 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*.

VAPE Home About Contact us		Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS Newton 150cm AHRG	OA_N	131 AHRG educational siap service
	Service metadata Ser	vice schema descriptor History of uploaded files
SERVICES		
OA_M31 AHRG educational slap service		Fits keys ▼ Functions ▼ Constant Undo
Add new telescope Add new service	RA [deg] =	OBJCTRA
		Fits keys Functions Constant Undo
	DEC [deg] =	OBJCTDEC
		Fits keys Functions Constant Undo
	Date [MJD] =	(JD-2400000.5)
		Fits keys Functions Constant Undo
	Image ID =	OBJECT
		Fits keys Functions Undo
	Pixel Scale - X [deg/px] =	(PIXSCALE / 3600)
		Fits keys Functions Constant Undo
	Pixel Scale - Y [deg/px] =	(PIXSCALE / 3600)

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

<u>Step 5</u>: **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*.

VAPE Home About Contact u	JS	Logged in as CA_M31 Logout
TELE SCOPE E AND IN ISTUMENTS Neuton 150cm AHRO		OA_M31 AHRG educational siap service
	Service metadata Se	rvice schema descriptor History of uploaded files
CA_M31 AHRG educational sisp service	status	approved
Add new talancone Add new service	vrīitie	OA_M31 AHRG educational sisp service
Plat Intel Setscope Plat Intel Set Total	shortname	AHRG_siap
	vrShortname	AHRG_slap
	vridentifier	ivo//i82.insf.it/edu/OA_M31/AHRG_siap
	vrDescription	T biscopio roboto distito dellarge 0030-0xer-utoto Astronomico della Galassia di Andromeda offre ai regazzi andromediari la posibilità di riperatere mangini di alti mosti a discontendiari e aleini (terrestri). Gi astrumenti a disposizione sono
	protocolType	slap
	vrSubject	educational#stars#galaxies#planets#aliens
	vrreferenceURL	http://www.co_m31 and/edu
	vrType	archive
	vrContentievel	educational
	accessURL	Waiting for VC-Dance
	dataquality	
	schemaname	Set by NADIR
	tableorview	AHRG_sigp_view
	Connected instruments:	AHRG est Save estatat Uplead rever (Re:

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

VAPE Home About Contact us		Logged in as OA_M31 Logout
TELESCOPES AND INSTRUMENTS Newton 150cm AHRG	Upload finished 1 files out of 1 successfully sent	
SERVICES OA_M31 AHRG educational slap service	Succesfully uploaded files: • m15_andromeda.fit	
Add new telescope Add new service		
erow elow		

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*.

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

Some examples on how to use Aladin for educational purposes are available on the web site <u>http://wwwas.oats.inaf.it</u> 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.

🧭 Server sele	ctor	_ 🗆 🗙
	Others Office Cailwo Match TV Tools	
Image servers	· vo discovery tool (2)	Catalog servers
Aladin images	Target (ICRS, name) 0:0:0 0:0:0 Grab coord Radius 180° 180° 180°	
	Seriers Vimages Catalogs Spectra Detailed list	Burveys
		Missions
Sloan		STUDIES OF STUDIES
DSS		
V LA		SkyBot
Archives		Others
Others		
	Press it to stop the processing => Stop it	
	Reset Clear SUBMIT Close ?	

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

🖉 Server list 💷 🗖 🔤 🔤				
Check/uncheck the servers concerned by the ALL VO discovery mode				
	Select all Unselect all Filter: Go Reset			
Imag	je servers			
1) V The Aladin image server (CDS/Strasbourg) - DSS/MAMA/2MASS/I ?				
2)	The UKIRT DR9 Infrared Deep Sky Survey			
3)	SDSS DR7 images			
4)	W Multimission Archive at STScI (MAST)			
5)	Hubble Legacy Archive Footprint Data (HLA)			
6)				
7)	V Hubble press release images ?			
8)	VO-Paris Southern Atlas (VOPSAT)			
9)	🕼 Generic SIA query			
	SUBMIT Close			

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

Ø Server list	• ×					
Check/uncheck the servers concerned by the ALL VO discovery mode						
Select all Unselect all Filter: SVAS Go	Reset					
Image servers						
inage servers						
1) 🕡 INAF-OATs SVAS Educational Images SIAP service	?					
Catalog servers						
	I					
Spectra servers						
SUBMIT Close						

The botton "?" 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.

Ø Server sele	ctor		
	Others OF File Sallvo Match TV 🕅	ols	
Image servers	● VO discovery tool 🔞		Catalog servers
Aladin images	Target (ICRS, name) 0:0:0 0:0:0 Grab Radius 180°	coord	
SkyView	Servers V Images Catalogs Spectra Detailed list		Burveys
UKIDSS		<u> </u>	Missions
Sloan	INAF-OATS SVAS Educational Images SIAP service 1 ml5 50.0" x 37.6" 1 m21 50.0" x 27.6"		
D\$S	■ 151 50.0 " × 37.6" ■ 157 50.0 " × 37.6" ■ 158 ngc5396 50.0 " × 37.6"		
Archives	PSh_ugc10313 50.0" × 37.6"		
		•	
Reset Clear SUBMIT Close (

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.

