

VO for education: the VESPA web application

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Introduction

- What is VESPA?
- VO Educational Service Publisher and Archive
- Web application that allows creation and publishing of educational VO services



Why VESPA?

- Telescopes dedicated to education are increasing throughout the world
- Educational data needs to be published to the Virtual Observatory
- Students and teachers need an easy way to do this
- VESPA tries to solve this problem



VESPA's solution

- Easy to use web-based graphical user interface
- Users can enumerate their own telescopes and instruments and create new VO services on top of them



VESPA user registration

- To use VESPA, users must sign up first
- Users must provide:
 - Name of the organization they belong to
 - A username and password
 - An e-mail address
 - Optionally, their organization address and telephone number



VESPA user registration

- After signing up, the user needs to wait for approval on our part before being able to log onto VESPA
- This is done manually by our operators
- The user will be notified by e-mail when his sign up request is approved
- At this point the user can start using VESPA



VESPA's user interface

The screenshot shows a web browser window with the URL `ia2-edu.oats.inaf.it:8080/vespa/?2`. The page header includes the VESPA logo and navigation links (Home, About, Contact us), along with a login status: "Logged in as inaf_oats | Logout".

The main content area is titled "SVAS Educational SIAP service" and features three tabs: "Service metadata" (selected), "Service schema descriptor", and "History of uploaded files".

Under the "Service metadata" tab, the following fields are visible:

- status: requested
- vrTitle: SVAS Educational SIAP service
- shortname: siap
- vrShortname: svasC14siap
- vrIdentifier: inaf_oats/svas/C14/siap
- vrDescription: Le Stelle Vanno A Scuola (SVAS) proposes a modern tool to support teaching of astronomy, through the study and experimentation of its observation methods
- protocolType: siap

On the left sidebar, there are sections for "TELESCOPES AND INSTRUMENTS" (listing Le Stelle Vanno A Scuola (SVAS), Apogee camera for the C14 telescope, and Coronado HELIOS 1 solar telescope) and "SERVICES" (listing SVAS Educational SIAP service). Below these are buttons for "Add new telescope" and "Add new service".



Telescope and instrument creation

- The user only needs to fill in three fields
- A name
- A shortname
- A description
- The telescope/instrument is then created automatically without any need of approval on our part



Service creation

- After defining telescopes and instruments, the user can start creating new services
- As a first step, the user needs to fill in the service creation form with the needed metadata
- Then, the user needs to load an example FITS file and provide a mapping between the FITS keys and the fields required by the protocol type



FITS keys to protocol fields mapping interface

VESPA Home About Contact us Logged in as dop | Logout

TELESCOPES AND INSTRUMENTS

- Dummy Telescope n.1
- Dummy Instrument 1
- Dummy Instrument 2
- Dummy Instrument 3
- Dummy Telescope n.2
- Dummy Instrument 4

SERVICES

- Dummy Service 1
- Dummy Service 2
- Dummy Service 3
- Dummy Service 4

Add new telescope Add new service

Dummy Service 1

Service metadata Service schema descriptor History of uploaded files

RA [deg] = Fits keys ▾ Functions ▾ Constant Undo

DEC [deg] = Fits keys ▾ Functions ▾ Constant Undo

Date [MJD] = Fits keys ▾ Functions ▾ Constant Undo

Image ID =

- OBJCTAZ
- OBJCTDEC
- OBJCTHA
- OBJCTRA
- OBJECT
- OBJ_TYPE
- OBSERVER
- ORIGIN
- PEDESTAL
- PIFRSIDE



Service creation

- The service is then set into a requested state
- At this stage we need to intervene manually to effectively enable the service
- Manual communication with NADIR (New Archiving Distributed InfrastructuRe project) for data ingestion setup
- Manual service publishing through VO-Dance
- When the service is activated the user is notified and he can start uploading new data



Service data upload

- Uploaded FITS files need to be conformant to VESPA's requirements
- FITS files must include TELESCOP, INSTRUME, PURPOSE, OBJ_TYPE, OBSERVER, INSTITUT keys
- TELESCOP and INSTRUME must match the names assigned to the respective entities in VESPA
- PURPOSE must be edu (as we only handle educational data)
- OBJ_TYPE must be either astro, solar or sun (this depends on the supported protocol types)



VESPA's current status

- VESPA is already deployed and publicly accessible at <http://ia2-edu.oats.inaf.it:8080/vespa>
- Currently in beta testing phase
- At the moment only the SIA protocol is supported
- Successfully used internally for publishing data of our educational telescope “Le Stelle Vanno a Scuola” (SVAS)
- The SVAS service has been registered at Euro-VO and accessible through the standard VO tools



Future plans

- Extend support to additional protocol types (notably SSAP)
- Improve labels and provide tooltips to the user
- Allow fixing of nonconformant FITS files inside VESPA
- Appropriate interface for administrators
- Automating much of the work we currently need to do manually
 - Data ingestion setup
 - Service publishing and activation



Underlying technologies

- Java EE 6 as programming language
- Apache Wicket 6.12 as development framework
- Twitter Bootstrap 2.3 for styling
- JPA 2.1 with EclipseLink 2.5 for persistence
- nom.tam.fits 1.11 for FITS parsing
- Log4j 2.0 for logging



Thank you

