

VO for education: the VESPA web application

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What is VESPA?

- VO Educational Service Publisher and Archive
- Web application for easily preparing VO services
- Targeted at people involved in education
- Built with Java, Wicket, Bootstrap, JPA (EclipseLink), nom.tam.fits, Log4j2

VESPA's Graphical User Interface

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

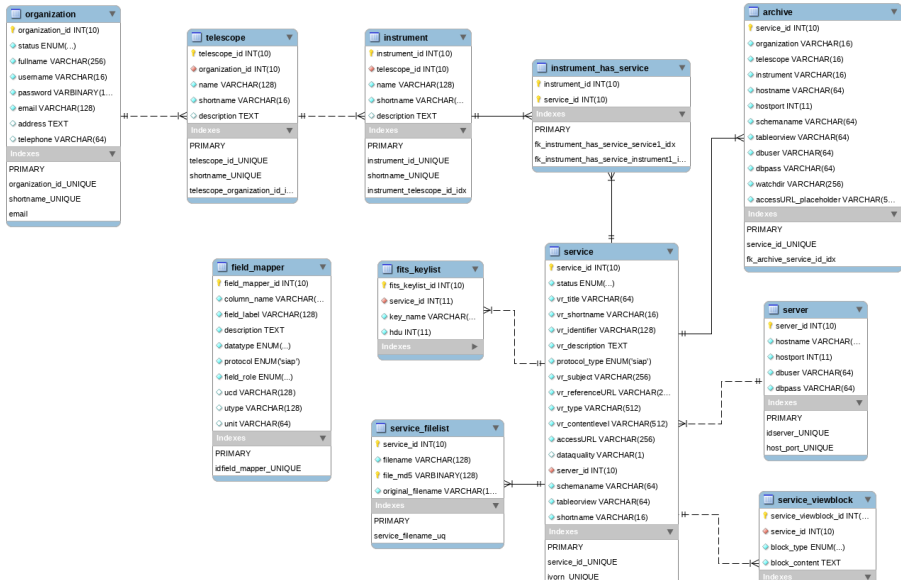
The main content area is titled **SVAS Educational SIAP service**. It features three tabs: **Service metadata** (selected), **Service schema descriptor**, and **History of uploaded files**.

On the left sidebar, there are sections for **TELESCOPES AND INSTRUMENTS** and **SERVICES**. Under **TELESCOPES AND INSTRUMENTS**, there is a link for **Le Stelle Vanno A Scuola (SVAS)** and sub-links for **Apogee camera for the C14 telescope** and **Coronado HELIOS 1 solar telescope**. Under **SERVICES**, there is a link for **SVAS Educational SIAP service** and two buttons: **Add new telescope** and **Add new service**.

The **Service metadata** tab displays the following information:

- 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

VESPA DB Model



The field mappers

column_name	description	protocol	field_role
radeg	Right Ascension in decimal degrees	siap	user
decdeg	Declination in decimal degrees	siap	user
MJDobs	Modified Julian Date of Observation	siap	user
imagetitle	Image identifier internally unique for the service	siap	user
pixscale1	Pixel scale factor for x-axis in decimal degrees per pixel	siap	user
pixscale2	Pixel scale factor for y-axis in decimal degrees per pixel	siap	user
naxes	Must be two, automatic detection	siap	computed
naxis1	automatic detection	siap	computed
naxis2	automatic detection	siap	computed
fileformat	fileformat	siap	hidden
accessReference	by NADIR	siap	hidden
filesize	by VESPA, rounded kB	siap	hidden
organization	organization	siap	hidden
telescope	organization.telescope	siap	hidden
instrument	organization.telescope.instrument	siap	hidden
observer	class or person	siap	hidden
institute	afferece	siap	hidden
obj_type	Astro/Solar/Sun	siap	hidden
purpose	will always be edu	siap	hidden

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 =

- OBJECTAZ
- OBJECTDEC
- OBJECTHA
- OBJECTRA**
- OBJECT
- OBJ_TYPE
- OBSERVER
- ORIGIN
- PEDESTAL
- PIERSIDE

VO service creation with VESPA

- Sign up
- Wait for registration approval
- Log in
- Define telescopes and instruments
- Provide service metadata
- Specify the fields required by the protocol type
- Wait for service approval
- Possibly request service registration
- Upload new observation data

VESPA requirements on FITS files

- To ensure consistency and the presence of basic information
- FITS files must include TELESCOP, INSTRUME, PURPOSE, OBJECT, 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 protocol type)

Service publishing and data ingestion

- Service publishing is done through the VO-Dance IA2 application
- At the moment, service publishing is done manually
- Everything is transparent to the user
- Data ingestion is handled automatically by NADIR (an internal IA2 infrastructure project)

Details on data ingestion

- Each service is assigned a folder on the filesystem
- NADIR places a watch on each folder
- VESPA places the uploaded files in the appropriate folder using a filename generated according to its internal naming convention
 - {OBJECT}.{DATE_OBS}-{FILE_MD5}.fit
 - Permits consistent file names and prevents filename clashes
 - Disables NADIR versioning support, which doesn't make sense for VESPA
- Inside VESPA, users can see the list of uploaded files (both the original and stored name are shown)

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 SIAP 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 (EURO-VO registry) 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, activation and registration

Thank you

