Abstract ID : **1**

TFCat – Time-Frequency Catalogue

Content

TFCat (Time-Frequency Catalogue) is an information model and a transport format designed for features varying in the temporal and spectral domains. It allows to describe spectro-temporal feature geometries, as points, sets of points, lines, sets of lines, polygons or sets of polygons. The catalogue and as well as each geometrical feature is associated with properties. TFCat has been drafted for low frequency radio emission (within the frame of the MASER project), for which the spectro-temporal shape of the emission is key for scientific interpretation (e.g., for solar radio bursts, planetary auroral radio emissions). We present how we reuse IVOA building blocks, and where we need to use external elements. The proposed implementation is adapted from GeoJSON, a geo-spatial feature catalogue format.

Preferred talk time

day time in Europe

Primary authors: CECCONI, Baptiste (Observatoire de Paris); Mr LOH, Alan (Observatoire de Paris); Mr BONNIN, Xavier (CNRS-Observatoire de Paris); Mr LION, Sonny (CNRS-Observatoire de Paris)

Presenter: CECCONI, Baptiste (Observatoire de Paris)

Track Classification: Data Access Layer; Radio Astronomy; Time Domain

Submitted by **CECCONI, Baptiste** on **Monday 12 April 2021**

Abstract ID : **2**

Product Type Vocabulary Review

Content

SimpleDALRegExt contains the vocabulary https://www.ivoa.net/rdf/product-type, which is mainly derived from what obscore has for its dataproduct_type column.

However, the definitions of this vocabulary needs to be reviewed, as the concepts so far are not (obviously) either disjunct or strict subsets. In this talk, I will review the problems and propose improvements.

Preferred talk time

daytime CEST

Primary author: DEMLEITNER, Markus (GAVO)

Presenter: DEMLEITNER, Markus (GAVO)

Track Classification: Data Access Layer; Registry; Semantics

Submitted by **DEMLEITNER, Markus** on **Wednesday 21 April 2021**

Abstract ID : **3**

Vocabularies in Action

Content

The Vocabularies in the VO 2 spec is now in RFC. In this talk, I will discuss the various implementations mentioned on the RFC page and, if first reviews are in, items requiring additional consideration.

Preferred talk time

daytime CET

Primary author: DEMLEITNER, Markus (GAVO)

Presenter: DEMLEITNER, Markus (GAVO)

Track Classification: Semantics

Submitted by **DEMLEITNER, Markus** on **Wednesday 21 April 2021**

Abstract ID : **4**

Advanced Column Metadata

Content

In the continuing project of enabling blind discovery (i.e. data discovery based on physical constraints), in this talk I will present a roadmap to adding information on the distribution of the values in a column to VODataService table metadata.

Preferred talk time

daytime CET

Primary author: DEMLEITNER, Markus (GAVO)

Presenter: DEMLEITNER, Markus (GAVO)

Track Classification: Registry

Submitted by **DEMLEITNER, Markus** on **Wednesday 21 April 2021**

Abstract ID : **5**

Datalink XSLT

Content

(feel free to chuck this if there are too many talks)

Datalink results come in VOTables, which need to be processed in non-trivial ways to be human-consumable. While in general this is done on the client side, making datalink results properly show in web browsers is a nice and useful service, in particular as long as many important clients do not (fully) support datalink.

In this talk, I will discuss a combination of XSLT and (ideally) Javascript that enables this; it is available from https://github.com/msdemlei/datalink-xslt.

Preferred talk time

daytime CET

Primary author: DEMLEITNER, Markus (GAVO)

Presenter: DEMLEITNER, Markus (GAVO)

Track Classification: Data Access Layer

Submitted by **DEMLEITNER, Markus** on **Wednesday 21 April 2021**

Abstract ID : **6**

VODataService 1.2 in RegTAP

Content

With VODataService 1.2 in RFC, the question of how to map it into RegTAP to actually make the additional metadata useful for discovery becomes urgent. In this talk, I will present the rr.stc_X tables that have been used on reg.g-vo.org during the development of VODataService 1.2, together with ADQL extensions required to enable powerful queries on this data.

Preferred talk time

daytime CET

Primary author: DEMLEITNER, Markus (GAVO)

Presenter: DEMLEITNER, Markus (GAVO)

Track Classification: Registry

Submitted by **DEMLEITNER, Markus** on **Wednesday 21 April 2021**

Abstract ID : **7**

Education, Virtual Observatory and Astronomical Data

Content

We present two projects that have been working on Astronomy Education using
Archival Data and Virtual Observatory tools. Both these projects and possible
extensions of these can be done in collaboration with iAU-OAD and the IVOA.In terms of data analysis and
VO Tools, we covered Python, Astropy, TopCat, Aladin,
EsaSky, R, Machine Learning and Big Data. The data used was Gaia, SDSS, HST,
Kepler, etc.are. We introduced students to high-quality archival astronomy data from various facilities, ground
and space-based. It involved a variety of speakers from India and abroad on Virtual Observatory Tools, Data
Archives and Science cases. All the sessions were recorded and posted online. We propose a coordination
between various worldwide attempts in this domain that will be of immense benefit to students and teachers.

Preferred talk time

9:00 hrs UTC - 2:00 hrs UTC

Primary author: Dr HASAN, Priya (Maulana Azad National Urdu University, Hyderabad, India)

Presenter: Dr HASAN, Priya (Maulana Azad National Urdu University, Hyderabad, India)

Track Classification: Education

Submitted by **Dr HASAN, Priya** on **Friday 23 April 2021**

Abstract ID : **8**

The Theoretical Astrophysical Observatory

Content

In this talk, I will share my experiences building and running the Theoretical Astrophysical Observatory (TAO), an online platform that hosts and delivers galaxy evolution models and cosmological N-body simulations to the astronomical community.

Preferred talk time

Any time for UTC+10:00 when the sun is up

Primary author: CROTON, Darren (Swinburne University of Technology)

Presenter: CROTON, Darren (Swinburne University of Technology)

Track Classification: Data Curation and Preservation; Knowledge Discovery in Databases; Theory

Submitted by **CROTON, Darren** on **Friday 30 April 2021**

Abstract ID : **9**

A VOSpace implementation with tape support

Content

Some INAF developers, supported by the Italian Center for Astronomical Archives (IA2), are working on a VOSpace implementation where part of the files are stored inside a tape library. Tape data is not immediately available and has to be retrieved using an asynchronous recall command that is performed inside a pullToVoSpace operation. The talk will discuss some limits that have been encountered in implementing this use case following the VOSpace specification.

Other notable features of this implementation are a support both for XML and JSON payloads and the usage of an OAuth2 token for authorization.

Preferred talk time

morning or afternoon slot (UTC+2)

Primary authors: ZORBA, Sonia (Istituto Nazionale di Astrofisica (INAF)); URBAN, Cristiano (Istituto Nazionale di Astrofisica (INAF)); BERTOCCO, Sara (Istituto Nazionale di Astrofisica (INAF)); CALABRIA, Nicola Fulvio (Istituto Nazionale di Astrofisica (INAF))

Presenter: ZORBA, Sonia (Istituto Nazionale di Astrofisica (INAF))

Track Classification: Applications; Grid and Web Services

Submitted by **ZORBA, Sonia** on **Friday 30 April 2021**

Abstract ID : **10**

A web portal for hydrodynamical, cosmological simulations

Content

I will describes a new data center hosting a web portal for accessing and sharing the output of large, cosmological, hydro-dynamical simulations with a broad scientific community hosted at LRZ. It also allows users to receive related scientific data products by directly processing the raw simulation data on a remote computing cluster.

The data center has a multi-layer structure: a web portal, a job control layer, a computing cluster and a HPC storage system. The outer layer enables users to choose an object from the simulations. Objects can be selected by visually inspecting 2D maps of the simulation data, by performing highly compounded and elaborated queries or graphically by plotting arbitrary combinations of properties. The user can run analysis tools on a chosen object. These services allow users to run analysis tools on the raw simulation data. The job control layer is responsible for handling and performing the analysis jobs, which are executed on a computing cluster. The innermost layer is formed by a HPC storage system which hosts the large, raw simulation data.

Preferred talk time

9:00-11:00 (CET)

Primary author: Dr DOLAG, Klaus

Co-author: Dr DOLAG, Klaus

Presenters: Dr DOLAG, Klaus; Dr DOLAG, Klaus

Track Classification: Applications; Data Curation and Preservation; Knowledge Discovery in Databases; Theory

Submitted by **DOLAG, Klaus** on **Monday 03 May 2021**

Abstract ID : **11**

The IllustrisTNG Simulation Data Platform

Content

I will describe our efforts over the past several years to comprehensively release the Illustris and IllustrisTNG simulations (www.tng-project.org). These are cosmological magnetohydrodynamical simulations: "virtual Universes in a box". I will discuss the current capabilities, usage, and future directions of the TNG public data release platform. This includes direct data access, API-based interactions, on-demand visualization and analysis tasks, and a Lab-based analysis interface.

Preferred talk time

EU daytime

Primary author: NELSON, Dylan (ITA, Heidelberg University)

Presenter: NELSON, Dylan (ITA, Heidelberg University)

Track Classification: Applications; Grid and Web Services; Data Curation and Preservation; Knowledge Discovery in Databases; Theory

Submitted by **NELSON, Dylan** on **Monday 03 May 2021**

Abstract ID : **12**

Disseminating Galacticus data through online platforms

Content

I will briefly describe our experiences in disseminating data from the "Galacticus" galaxy formation model through online platforms, with a focus on some of the challenges and limitations that we have found.

Preferred talk time

8-4pm UTC+7:00

Primary author: BENSON, Andrew (Carnegie Institution for Science)

Presenter: BENSON, Andrew (Carnegie Institution for Science)

Track Classification: Grid and Web Services

Submitted by **BENSON, Andrew** on **Wednesday 05 May 2021**

Abstract ID : **13**

Can I do this?

Content

The first step towards interoperable cloud compute and science platforms - a simple metadata schema and web service API to check if a computing activity can be performed on a platform.

Preferred talk time

No preference

Primary author: MORRIS, Dave (University of Edinburgh)

Presenter: MORRIS, Dave (University of Edinburgh)

Track Classification: Grid and Web Services; Knowledge Discovery in Databases; Science Platform workshop

Submitted by **MORRIS, Dave** on **Thursday 06 May 2021**

Abstract ID : **14**

Registering IVOA software in ESCAPE

Content

The European ESCAPE project is creating a registry of software linked to the project. Our work package in ESCAPE is tasked with promoting IVOA standards andsoftware within ESCAPE. We have started a discussion in ESCAPE about how to promote IVOA software in the context of ESCAPE. This session is to raise the same discussion at the IVOA, collecting thoughts ideas and suggestions about how to promote IVOA software to other communities.

Preferred talk time

Given the topic, European time zone would be best.

Primary author: MORRIS, Dave (University of Edinburgh)

Presenter: MORRIS, Dave (University of Edinburgh)

Track Classification: Applications

Comments:

Not sure which track this fits under. Probably the main one is Applications, but I expect some of the people involved in Registry and Semantics may want to contribute to this.

Submitted by **MORRIS, Dave** on **Thursday 06 May 2021**

Abstract ID : **15**

Data Central's Simple Spectral Access Service

Content

Australian spectroscopic surveys have produced millions of spectra with the help of innovative multi-object spectroscopy instrumentation. Since February 2021, spectra from several surveys are now available via Data Central's new Simple Spectral Access service. In this talk we will give an overview of the service and its Python Django implementation. Particular attention will be given to how the highly heterogeneous formats of the original spectra were regularised with the help of astropy specutils. We provide several client Python scripts that show how the service can be used, e.g. plotting time series spectra, generating preview PDFs of spectra with image cutouts and creating interactive applications to visualise spectra. Lastly, we discuss future plans for the service within the broader set of Data Central services. This may include exploiting the Python implementation of the service as a test bed for new features, e.g. multi-order coverage (MOC) map based spatial and/or temporal queries using MOCPy.

Preferred talk time

Any of the DAL sessions are fine. Timezone: UTC+10 (Sydney)

Primary author: MISZALSKI, Brent (Macquarie University)

Presenter: MISZALSKI, Brent (Macquarie University)

Track Classification: Data Access Layer

Submitted by **MISZALSKI, Brent** on **Sunday 09 May 2021**

Abstract ID : **16**

Data Central's Data Aggregation Service

Content

Observational data are now accessible in a wide variety of online interfaces that may be queried programmatically (e.g. from Python). These include IVOA DAL services (e.g. TAP, SIA, SSA and SCS), HiPS sky maps, cubes and catalogues (e.g. using MOCs), and API endpoints (e.g. VizieR ASU; MAST PANSTARRS/HSC catalogues; Gemini archive). Even with a list of known services, it can be laborious for the average astronomer to check whether a favourite target has any data available, especially since each service also has its own idiosyncrasies to learn. In this talk we will introduce a Data Aggregation Service (DAS) developed for the Commensal Real-time ASKAP Fast Transients (CRAFT) survey team to quickly inspect Fast Radio Burst (FRB) candidates. The DAS is a Django Python web application that uses Aladin Lite to aggregate catalogue and imaging data from multiple services for a given sky position of interest. An overlay in Aladin Lite shows the FRB position and its uncertainty, while several catalogues from multiple services are loaded into Aladin Lite. The latter may be downloaded or sent directly to TOPCAT via Web SAMP. Apart from HiPS images, Aladin Lite can display FITS data sourced directly from SIA and other services (e.g. Gemini archive), allowing for versatile data visualisation and discovery. We plan to extend DAS by adding user management, allowing for a wide range of astronomers to customise and benefit from its unique aggregation capabilities.

Preferred talk time

Any of the Apps or DAL sessions are fine. Timezone: UTC+10 (Sydney)

Primary author: MISZALSKI, Brent (Macquarie University)

Presenter: MISZALSKI, Brent (Macquarie University)

Track Classification: Applications; Data Access Layer

Submitted by **MISZALSKI, Brent** on **Sunday 09 May 2021**

Abstract ID : **17**

MASER EPN-TAP services

Content

We present EPN-TAP services proposed by the MASER project (dedicated to solar-system low frequency radio-astronomy).

Preferred talk time

14:00 UTC+2

Primary authors: CECCONI, Baptiste (Observatoire de Paris); LOH, Alan (Observatoire de Pairs); LOUIS, Corentin (DIAS, Dublin, Ireland); LAMY, Laurent (Observatoire de Paris & LAM, Marseille)

Presenter: CECCONI, Baptiste (Observatoire de Paris)

Track Classification: Solar System

Submitted by **CECCONI, Baptiste** on **Monday 10 May 2021**

Abstract ID : **18**

Observatorio Astrofísico de Javalambre (OAJ) publishing registry and VO services validation

Content

The Centro de Estudios de Física del Cosmos de Aragón (CEFCA) is carrying out from the Observatorio Astrofísico de Javalambre (OAJ, Teruel, Spain) two large area multiband photometric sky surveys, J-PLUS and J-PAS, covering the entire optical spectrum using narrow and broad band filters.

As an effort to make public the data, we offer Virtual Observatory (VO) compliant services to make more versatile the access to the data through the multiple VO compliant existent tools. To publish all of these services a Publishing Registry has just been implemented and registered in the RoF. Moreover, all our VO services (SCS, SIAP, TAP, MOC and HIPS) have been validated using different external validators and improved to fulfill the protocols.

This contribution presents CEFCA catalogues publishing registry, how has been implemented and all the issues and problems found during this VO services validation process.

Preferred talk time

If possible between 06:30 and 20:oo UTC . I live in Spain UTC +2.

Primary author: CIVERA LORENZO, Tamara (Centro de Estudios de Física del Cosmos de Aragón (CEFCA))

Presenter: CIVERA LORENZO, Tamara (Centro de Estudios de Física del Cosmos de Aragón (CEFCA))

Track Classification: Registry; Operations

Submitted by **CIVERA LORENZO, Tamara** on **Monday 10 May 2021**

Abstract ID : **19**

Data-sharing at the CCA: Binder and FlatHUB

Content

I will describe and discuss the two main platforms for providing public access to astrophysical simulation data that is hosted at the Flatiron Institute. The Binder service, built upon the open-source tool BinderHub, allows any Flatiron researcher to customize a computing environment for external users, providing them with basic tools such as a terminal and a Jupyter notebook for interfacing with selected data stored on the Flatiron cluster. FlatHUB is a science platform developed in-house that allows users to explore and compare data from different simulations and datasets with one another, browse and filter the data collections, make simple preview plots, and download sub-samples of the data.

Preferred talk time

any of the sessions starting 13:30 UTC are ok (I am located in EDT), except for Friday 5/28 on which I will not be available

Primary author: Dr GENEL, Shy (Flatiron Institute)

Presenter: Dr GENEL, Shy (Flatiron Institute)

Track Classification: Data Curation and Preservation; Knowledge Discovery in Databases; Theory; Science Platform workshop

Submitted by **Dr GENEL, Shy** on **Monday 10 May 2021**

Abstract ID : **20**

pyvo, registry search and data discovery

Content

The evolution of data discovery and search patterns in the registry require the expansion of pyvo search functionality to cover some use cases. Bringing together registry, pyvo experts, and invested users can clarify the path forward.

Preferred talk time

NOT Tuesday morning EDT.

Primary author: DOWER, Theresa (STScI)

Presenter: DOWER, Theresa (STScI)

Track Classification: Registry

Submitted by **DOWER, Theresa** on **Monday 10 May 2021**

Abstract ID : **21**

SIAV2-next and Simple dataset discovery

Content

A couple of issues have been opened after a long feedback on SIAV2 implementations. Furthermore, the question of extending SIAV2 to all types of datasets (spectra, Timeseries, etc...) has to be raised. The talk will expose possible evolutions of parameter based discovery services

Preferred talk time

15'

Primary author: BONNAREL, François (CDS observatoire astromique de Strasbourg)

Presenter: BONNAREL, François (CDS observatoire astromique de Strasbourg)

Track Classification: Data Access Layer

Submitted by **BONNAREL, François** on **Tuesday 11 May 2021**

Abstract ID : **22**

TimeSeries discovery and Access DAL possible solutions

Content

Various possible DAL solutions for TimeSeries discovery and access will be discussed

Preferred talk time

15'

Primary authors: BONNAREL, François (CDS observatoire astromique de Strasbourg); LOUYS, mireille (CDS, ICUBE, Université de Strasbourg); MICHEL, Laurent (Observatoire de Strasbourg); MOLINARO, Marco (Istituto Nazionale di Astrofisica (INAF)); NEBOT GOMEZ, Ada (CDS, ObAS, Université de Strasbourg)

Presenter: BONNAREL, François (CDS observatoire astromique de Strasbourg)

Track Classification: Data Access Layer; Data Model; Time Domain

Comments:

Could be either in DAL or in DAL/DM according to time left

Submitted by **BONNAREL, François** on **Tuesday 11 May 2021**

Abstract ID : **23**

Radio data and interferometry ObsCore extension proposal

Content

Fine grain description of radio visibility data would benefit from the standardisation of specific metadata to be aded to the basic ObsCore attributes

Preferred talk time

15'

Primary authors: BONNAREL, François (CDS observatoire astromique de Strasbourg); LOUYS, mireille (CDS, ICUBE, Université de Strasbourg)

Presenter: BONNAREL, François (CDS observatoire astromique de Strasbourg)

Track Classification: Data Model; Radio Astronomy

Comments:

better in DM

Submitted by **BONNAREL, François** on **Tuesday 11 May 2021**

Abstract ID : **24**

Radioastronomy data services integration in the VO implementation note

Content

This talk will present the status of this implementation note

Preferred talk time

10'

Primary authors: BONNAREL, François (CDS observatoire astromique de Strasbourg); LACY, Mark (NRAO)

Presenters: BONNAREL, François (CDS observatoire astromique de Strasbourg); LACY, Mark (NRAO)

Track Classification: Radio Astronomy

Comments:

Presentation by Mark or François

Submitted by **BONNAREL, François** on **Tuesday 11 May 2021**

Abstract ID : **25**

CDS registry migration

Content

The CDS registry publishes a significant fraction of the VO resources with 20K of VizieR catalogues.
A revisited version of the CDS registry has been developed in accordance with the recent recommendation of the IVOA registry. The upgrades includes a description of the mirrors, the catalogues DOI, a better management of related resources and finally a keyword mapping using the Unified Astronomical Thesaurus (UAT). To prevent any client compatibility issues –in particular with the registries of registries– a beta version containing all registered CDS resources is available. We will list the updates and the schema used in this version in order to plan a migration of the CDS registry .

Preferred talk time

Europe timezone

Primary author: LANDAIS, Gilles (CDS - Observatoire Astronomique de Strasbourg)

Co-author: Dr DERRIERE, Sebastien (CDS)

Presenter: Dr DERRIERE, Sebastien (CDS)

Track Classification: Registry

Submitted by **LANDAIS, Gilles** on **Tuesday 11 May 2021**

Abstract ID : **26**

Handling Cosmological Simulations at the Port d'Informació Científica (PIC)

Content

Our group at the Port d'Informació Científica (PIC) collaborates with different cosmology projects such as the Dark Energy Survey (DES), Euclid, the Physics of the Accelerating Universe Survey (PAUS) and the Marenostrum Institut de Cièncias de l'Espai simulations (MICE). For these projects, simulations are a key ingredient in the whole data flow, from feeding the software pipelines to finally enabling to achieve precise estimations of cosmological parameters.

Cosmological simulations are usually rather large (> 100 GiB) and most users only require specific subsets related to their own field of work. At PIC, we have developed CosmoHub (https://cosmohub.pic.es), a web platform based on Hadoop to perform interactive exploration, customization and distribution of massive astronomical datasets without any Structured Query Language (SQL) knowledge required. It currently manages over 60 TB of catalogued information and over 50 billion objects, and provides support to an ever-growing worldwide community of more than 1000 scientists.

During the talk I will describe CosmoHub and some of the lessons learned during the last years handling cosmological simulations.

Preferred talk time

May 25 at 13:30 UTC

Primary author: CARRETERO PALACIOS, Jorge (Institut de Física d'Altes Energies (IFAE) - Port d'Informació Científica (PIC))

Presenter: CARRETERO PALACIOS, Jorge (Institut de Física d'Altes Energies (IFAE) - Port d'Informació Científica (PIC))

Track Classification: Applications; Data Access Layer; Grid and Web Services; Science Platform workshop

Submitted by **CARRETERO PALACIOS, Jorge** on **Tuesday 11 May 2021**

Abstract ID : **27**

A&A Updates: GMS, SSO and tokens

Content

I will present updates to the Group Membership Service WD based on our two reference implementations. I will also present recent additions to the CADC authentication libraries to support command line use of tokens for authentication. The intent is to stimulate discussion around these two areas of development.

Preferred talk time

I'm in Victoria BC, UTC-9

Primary author: MAJOR, Brian (CADC)

Presenter: MAJOR, Brian (CADC)

Track Classification: Grid and Web Services

Submitted by **MAJOR, Brian** on **Tuesday 11 May 2021**

Abstract ID : **28**

CANFAR Science Platform 2.0

Content

The Canadian Advanced Network for Astronomical Research (CANFAR) recently launched an interactive, container-based platform for astronomy research. Users and projects manage much of their own experience on this platform via an integrated software image registry and self-managed Group Membership Service. This talk will highlight the unique offerings of this platform, the difficult problems faced during development, and thoughts on how we can collaborate with other platforms through standardization and open-source development.

Preferred talk time

I'm in Victoria BC, UTC-9

Primary author: MAJOR, Brian (CADC)

Presenter: MAJOR, Brian (CADC)

Track Classification: Science Platform workshop

Comments:

Giuliano, Gerard: If you do not think this talk will be relevant to the workshop I do not need to present. I don't believe we have any simulations being run on this platform yet. We are currently integrating a GPU node into k8s to be made available to the different sessions (Jupyter, CARTA, etc...)

Submitted by **MAJOR, Brian** on **Tuesday 11 May 2021**

Abstract ID : **29**

Workflow interoperability for telescope operations and time domain astronomy

Content

I will present our work on improving interoperability of scientific workflows, supporting operations of astronomical data centers, started with INTEGRAL observatory ground segment activities, and extended to several other missions. We are adapting traditional data analysis processes into cloud-native environment and incorporating RDF Knowledge Graphs to annotate, publish, and discover data and live workflows. The Knowledge Graphs also consume diverse human-written and automated publications and drive automated data and workflow transformation and composition for the needs of time domain astronomy and telescope operations. Our platform implements end-to-end (publication-experiment-publication) scientific process, while maintaining semantically rich data knowledge-driven data model, facilitating data and workflow interoperability in linked data paradigm. Our development is fully open source, available for deployment on premises or in public cloud by any interested party.

Preferred talk time

no preference at this time

Primary authors: SAVCHENKO, Volodymyr (University of Geneva); Dr FERRIGNO, Carlo; Prof. NERONOV, Andrii

Presenter: SAVCHENKO, Volodymyr (University of Geneva)

Track Classification: Applications; Data Model; Grid and Web Services; Registry; Semantics; Knowledge Discovery in Databases; Operations; Time Domain

Submitted by **SAVCHENKO, Volodymyr** on **Wednesday 12 May 2021**

Abstract ID : **30**

Astro Colibri

Content

Flares of known stable astronomical sources and transient sources can occur on different timescales, from only a few seconds to several days. The discovery potential of both serendipitous observations and multi-messenger and multi-wavelength follow-up observations could be maximized with a tool which allows for quickly acquiring an overview over both stable sources and transient events in the relevant phase space. We here present COincidence LIBrary for Real-time Inquiry (Astro-COLIBRI), a comprehensive tool for this task. Astro-COLIBRI's architecture comprises a RESTful API, a real-time database, a cloud-based alert system and a website. Users will also have the opportunities to use it on an apps for both iOS and Android. The structure of Astro-COLIBRI is optimized in terms of performance and exploits concepts such as multi-index database queries, a global content delivery network (CDN), direct data streams from the database to the clients and cashing.

Astro-COLIBRI evaluates incoming VOEvent messages of astronomical observations in real time, stores them in the database and filters them by user specified criteria in the context of known sources from various catalogs. The clients provide a graphical representation with a summary of the relevant data to allow for the fast identification of changes in observed sky regions, and for analyses of those. In this contribution, the key features of Astro-COLIBRI are presented including the architecture and the resources providing data to the Back-End . The current implementation of Astro-COLIBRI will be illustrated with use cases in multi-messenger astrophysics

Preferred talk time

morning of UTC+2

Primary authors: Dr LEFRANC, Valentin (CEA IRFU); SCHUSSLER, Fabian (IRFU / CEA Paris-Saclay); Mr REICHHERZER, Patrick

Presenter: Dr LEFRANC, Valentin (CEA IRFU)

Track Classification: Applications; Data Access Layer; Grid and Web Services; Data Curation and Preservation; Knowledge Discovery in Databases

Submitted by **LEFRANC, Valentin** on **Wednesday 12 May 2021**