

Last developments on the CASSIS spectra software



CASSIS Team :
Jean-Michel Glorian, Mickaël Boiziot,
Emmanuel Caux, Sandrine Bottinelli,
Charlotte Vastel, Audrey Coutens

- Presentation of CASSIS in the VO

- What's new in the future 6.4 version
 - Standardization of spectra access interface modules
 - Planetary hyperspectral cube integration in the CASSIS Aladin Plugin
 - Update of the Database module and implementation of the LineTAP prototype client
 - Integration of the library for authentication of Mark Taylor

- Tool to find and visualize electromagnetic spectra in many formats using

SSA, **EPN-TAP**, **OBS-TAP**




- Tool to identify lines using
 - internal sqlite database created from CDMS, JPL and private database
 - **VAMDC** (Virtual Atomic and Molecular database Center)
 - **SLAP**, **SLAPv2**, **LineTap** (prototype)
- Tool to communicate with **SAMP** with other VO tools like Aladin or Topcat

▪ Version

- Desktop version
- Online version with Java webstart
- Plugin version in Aladin desktop,

▪ Download snapshot version <https://download-ovgso-dev.irap.omp.eu/>



The screenshot shows the 'OV-GSO Downloads' website. On the left is a navigation menu with items: 'Download list', 'CASSIS', 'mMass', 'CASSIS-Plugin-Aladin', and 'MasSI'. The main content area has a blue header with 'OV-GSO Downloads', 'OV-GSO Wiki', and 'Login'. Below the header is a section titled 'Last builds' containing a table with the following data:

Name	Project	Type	Build date	Download
cassis6.4-SNAPSHOT230506-build6965.tar.gz	CASSIS	Weekly	2023-05-06 04:59:21	↓
CASSIS Plugin Aladin 6.4.0.0-SNAPSHOT	CASSIS-Plugin-Aladin	Continuous	2023-05-03 18:25:03	↓

▪ Version 6.4 available in few weeks

CASSIS presentation : Example of TOPCAT/CASSIS interaction with SAMP and Activation Actions

Simple Spectral Access (SSA) Query

Window Columns Registry Interop Help

Available SSA Services

Registry: <http://reg.g-vo.org/tap> RegTAP

Keywords: polarbase And

Match Fields: Short Name Title Subjects ID Publisher Descr

Accept Resource Lists Cancel Find Services

Short Name	Title	Subject
Polarbase SSAP	Polarbase SSAP service for ESPaDOns/Narval spectra	Spectroscopy, Spect

AccessURL	Description	Version
http://polarbase.irap.omp.eu/ssa_polarbase?		

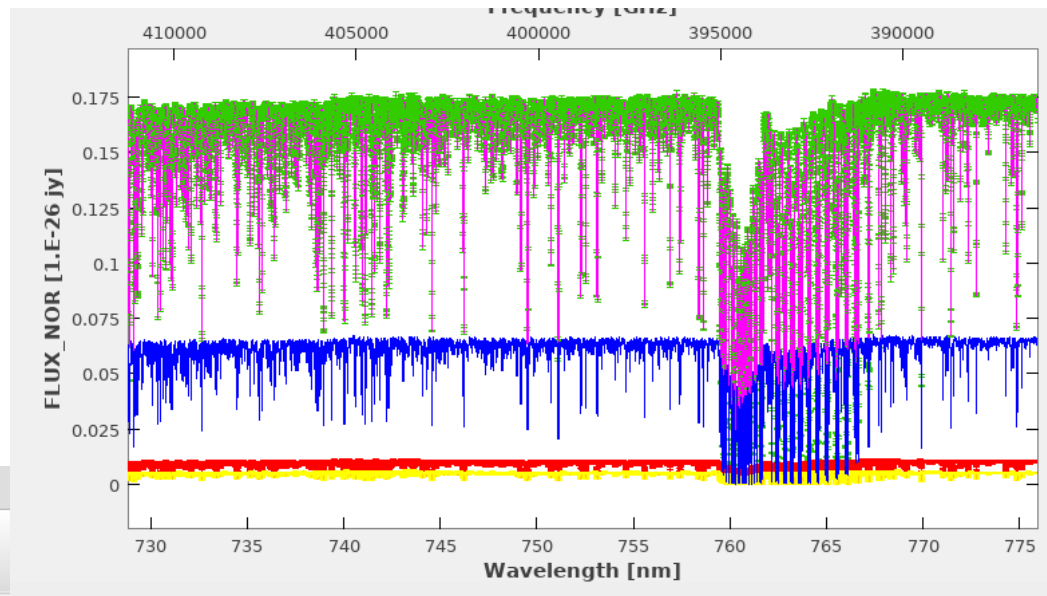
Resource Count: 1

SSA Parameters

SSA URL: http://polarbase.irap.omp.eu/ssa_polarbase?

Object Name: Pollux Resolve

RA: 116.328957774 degrees (J2000) Accept Sky Positions



TOPCAT(2): Activation Actions

Window Actions Help

+ - [Icons] f(x) ? X

Activation Actions for 2: Pollux-Polarbase SSAP

Actions

- Load Table
- Plot Table
- Send FITS Image
- Send Spectrum
- Download URL
- View in Web Browser
- Delay

Description

Send the content of a file or URL column as a Spectrum to an external application using SAMP

Configuration

Spectrum Location: url

Spectrum Viewer: Cassisi

Status

Invoke now on row 1

Results

Seq	Row	Status	Message
-----	-----	--------	---------

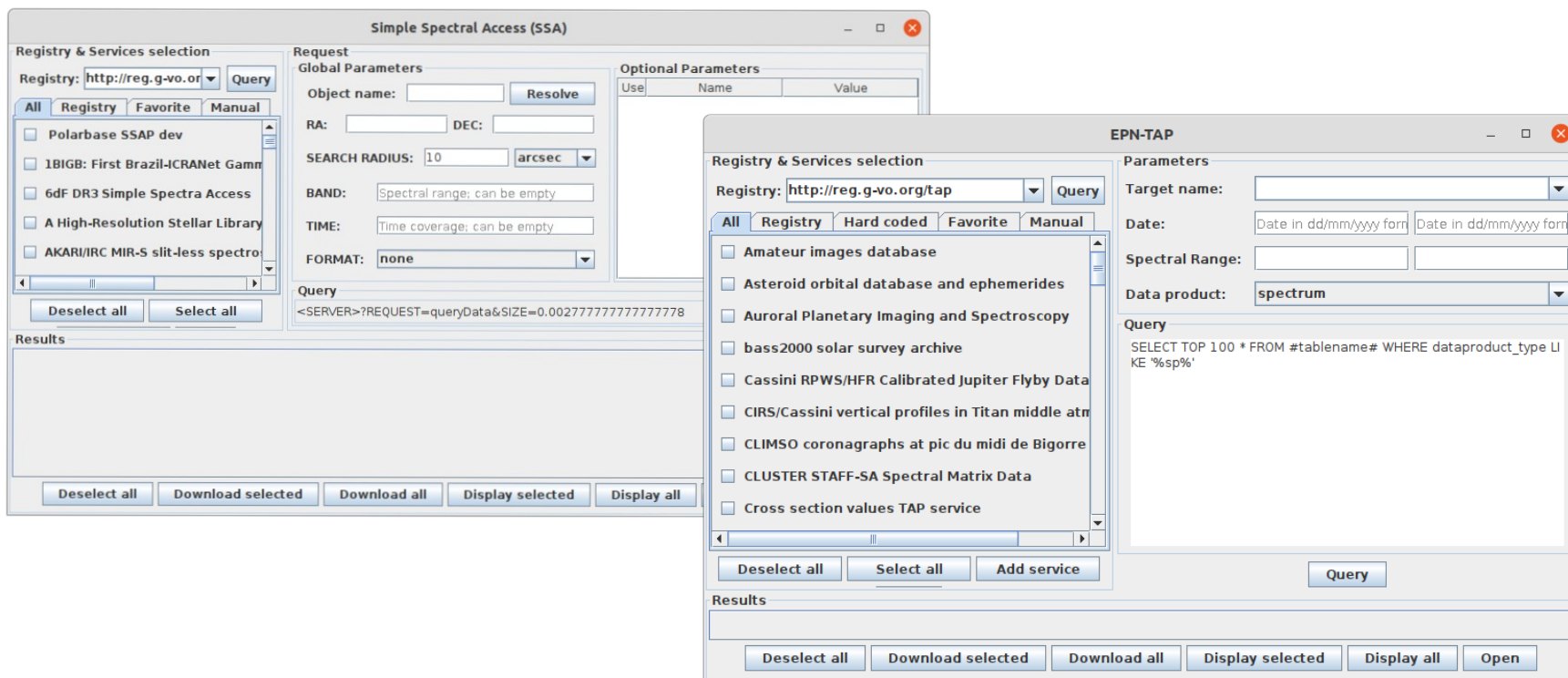
TOPCAT(2): Table Browser

Window Rows Help

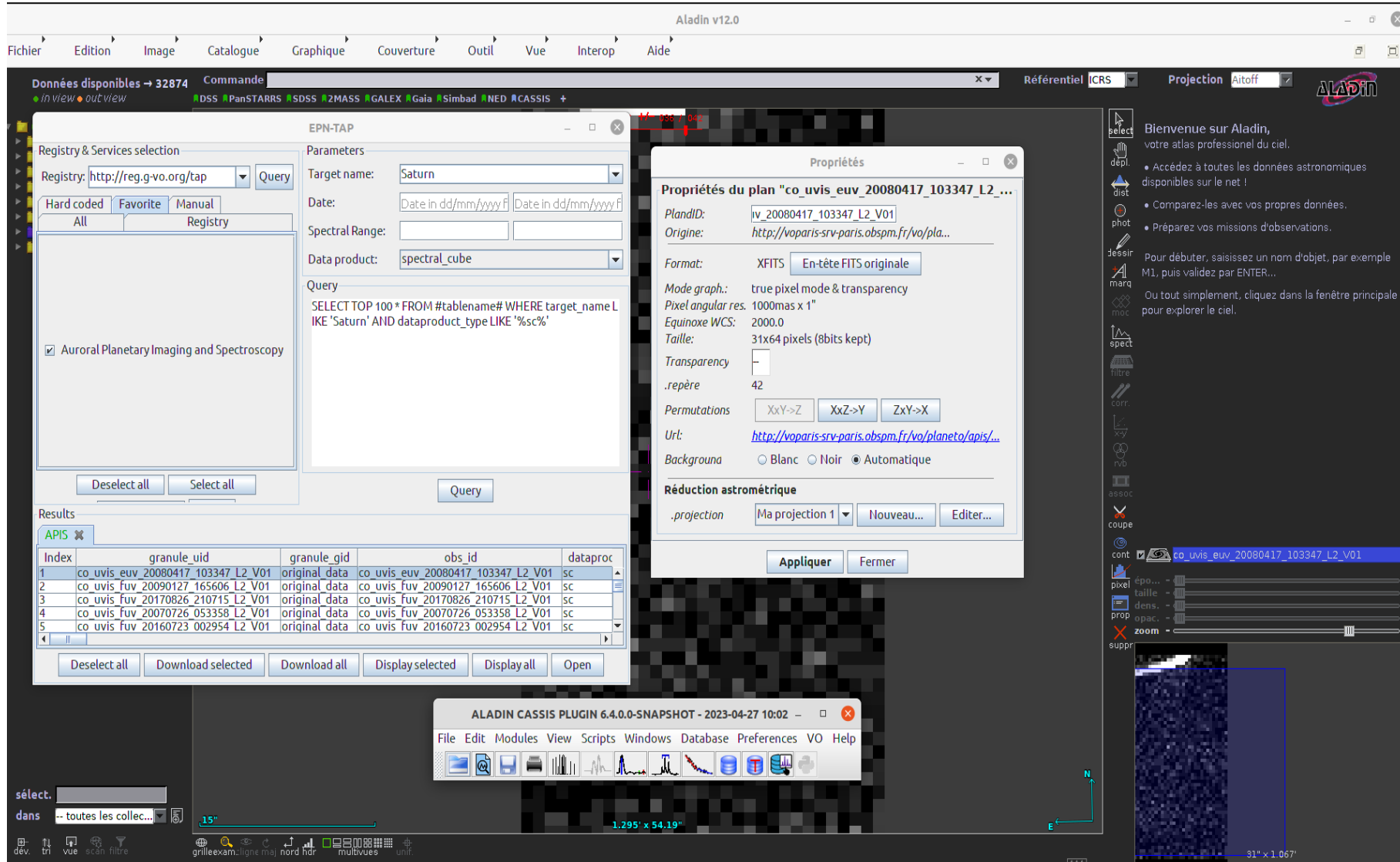
Table Browser for 2: Pollux-Polarbase SSAP

	Title	DataLength	TargetPos	SpectralAxisName	SpectralAxisUnit	spectralsI	FluxAxisName
7	espadons_2007_009_945967p_u	213794	(116.329, 28.0262)	AWAV	nanometer	1E-9 L	FLUX
8	espadons_2007_009_945968i_u	213794	(116.329, 28.0262)	AWAV	nanometer	1E-9 L	FLUX
9	espadons_2007_009_945969i_u	213794	(116.329, 28.0262)	AWAV	nanometer	1E-9 L	FLUX
10	espadons_2007_009_945970i_u	213794	(116.329, 28.0262)	AWAV	nanometer	1E-9 L	FLUX
11	espadons_2007_009_945963i	213794	(116.329, 28.0262)	AWAV	nanometer	1E-9 L	FLUX NOR
12	espadons_2007_009_945963p	213794	(116.329, 28.0262)	AWAV	nanometer	1E-9 L	FLUX NOR

Total: 3 012 Visible: 3 012 Selected: 1



- SSA Object resolver : Simbad
- EPN-TAP Target resolver : SsODNet.quaero



Aladin v12.0

Fichier Edition Image Catalogue Graphique Couverture Outil Vue Interop Aide

Données disponibles → 32874 Commande

Registry: <http://reg.g-vo.org/tap> Query

Hard coded Favorite Manual

All Registry

Parameters

Target name: Saturn

Date: [Date in dd/mm/yyyy] [Date in dd/mm/yyyy]

Spectral Range: [] []

Data product: spectral_cube

Query

```
SELECT TOP 100 * FROM #tablename# WHERE target_name LIKE 'Saturn' AND dataproduct_type LIKE '%sc%'
```

Results

Index	granule_uid	granule_gid	obs_id	dataproc
1	co_uvis_euv_20080417_103347_L2_V01	original_data	co_uvis_euv_20080417_103347_L2_V01	sc
2	co_uvis_fuv_20090127_165606_L2_V01	original_data	co_uvis_fuv_20090127_165606_L2_V01	sc
3	co_uvis_fuv_20170826_210715_L2_V01	original_data	co_uvis_fuv_20170826_210715_L2_V01	sc
4	co_uvis_fuv_20070726_053358_L2_V01	original_data	co_uvis_fuv_20070726_053358_L2_V01	sc
5	co_uvis_fuv_20160723_002954_L2_V01	original_data	co_uvis_fuv_20160723_002954_L2_V01	sc

Properties

Propriétés du plan "co_uvis_euv_20080417_103347_L2_..."

PlanID: lv_20080417_103347_L2_V01

Origine: <http://voparis-srv-paris.obspm.fr/vo/pla...>

Format: XFITS En-tête FITS originale

Mode graph.: true pixel mode & transparency

Pixel angular res. 1000mas x 1"

Equinoxe WCS: 2000.0

Taille: 31x64 pixels (8bits kept)

Transparency []

.repère 42

Permutations XxY->Z XxZ->Y ZxY->X

Url: <http://voparis-srv-paris.obspm.fr/vo/planeto/apis...>

Background Blanc Noir Automatique

Réduction astrométrique

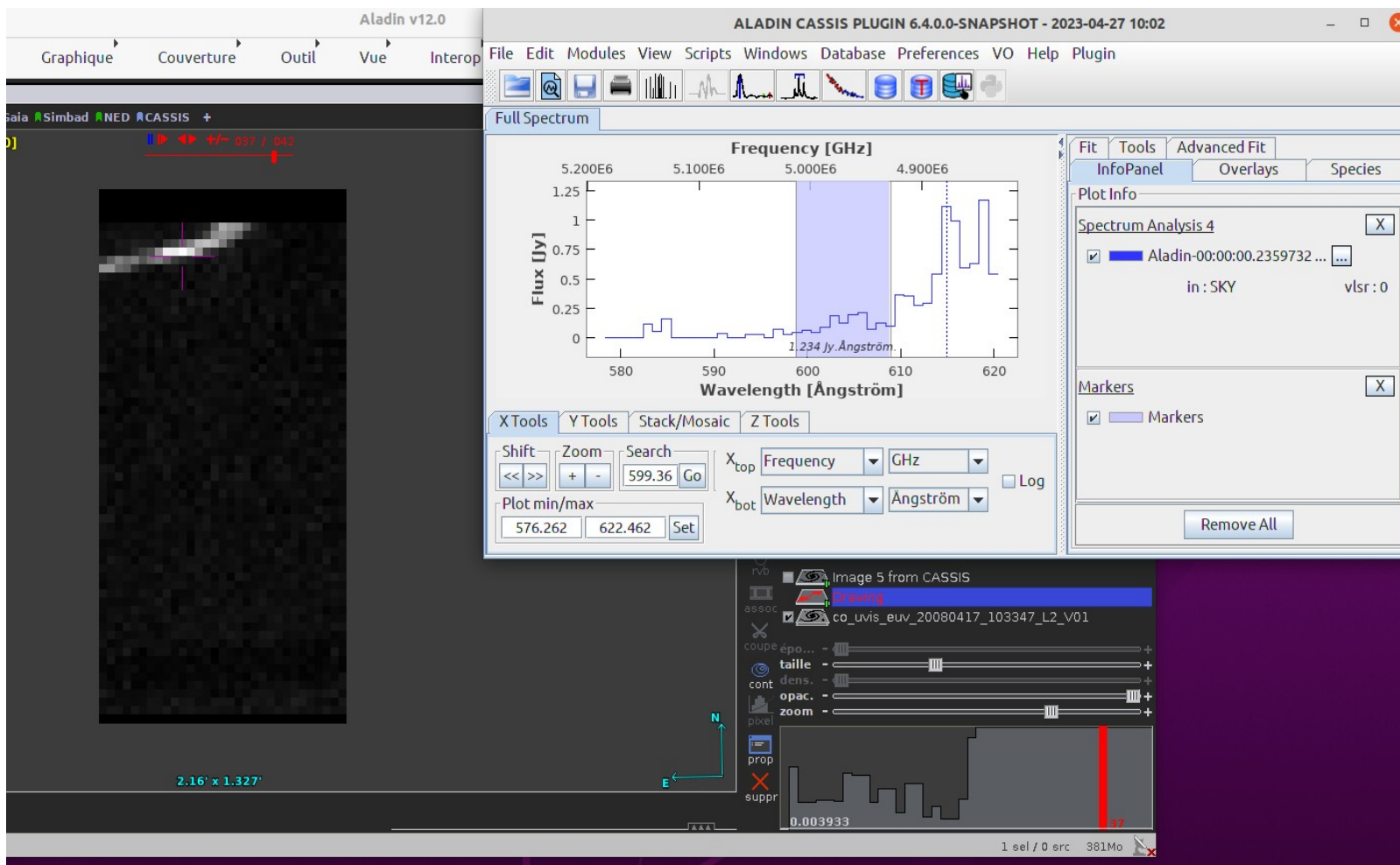
.projection Ma projection 1 Nouveau... Editer...

ALADIN CASSIS PLUGIN 6.4.0.0-SNAPSHOT - 2023-04-27 10:02

File Edit Modules View Scripts Windows Database Preferences VO Help

sélect. [] dans -- toutes les collec... []

15" 1.295" x 54.19" 31" x 1.067"



Database module with LineTAP protocol

Preferences

General Database Settings Radex Fit VO

Database

Database Type:

Database Path:

Database

Database Type:

Database Path: ...

Database

Database Type:

Database Path:

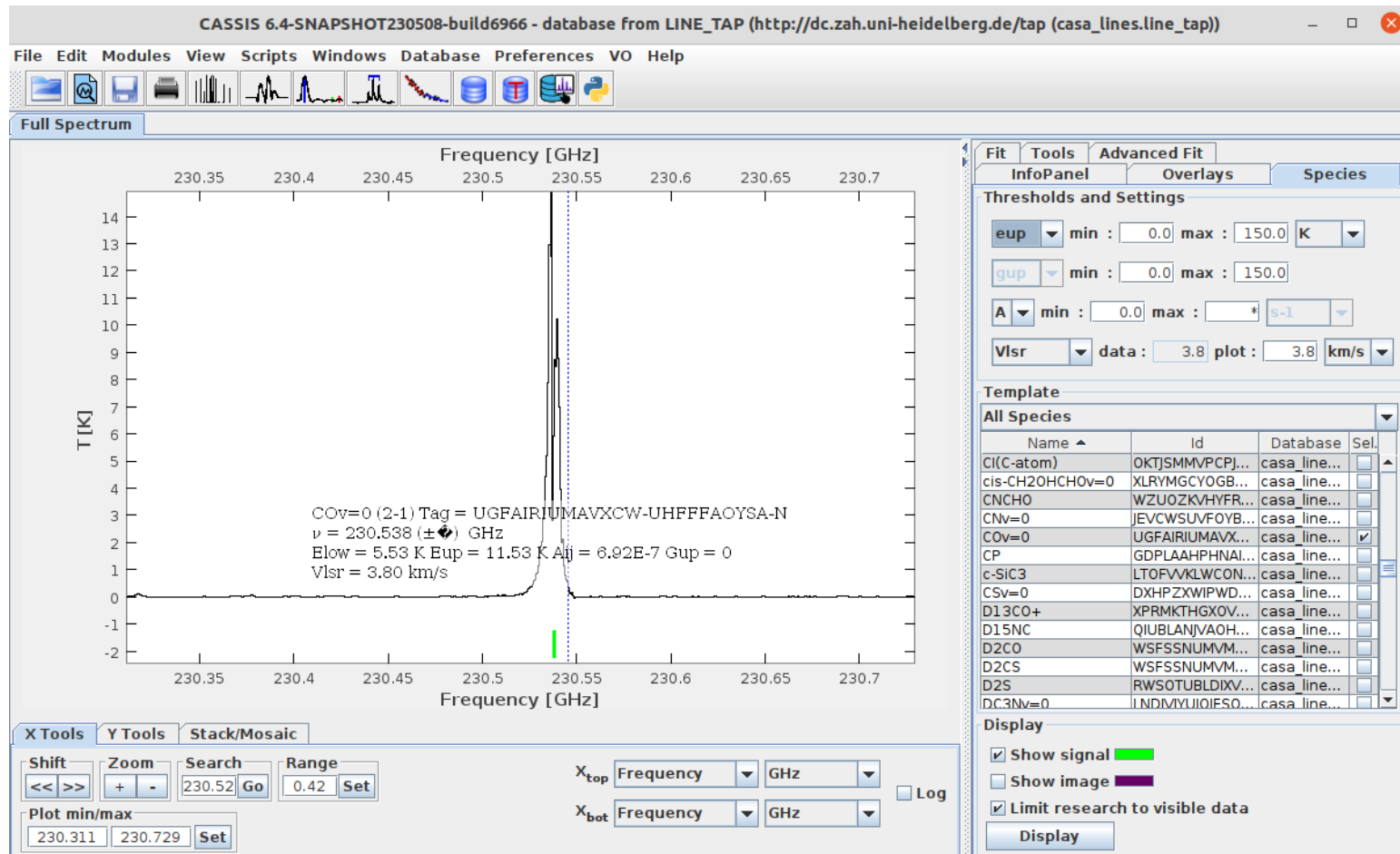
Add new database

Default template:

Species sources colors:

<input type="button" value="CDMS"/>	<input type="button" value="NIST"/>	<input type="button" value="VASTEL"/>
<input type="button" value="XCDMS"/>	<input type="button" value="casa_lines.line_tap"/>	<input type="button" value="JPL"/>









Database module with LineTAP protocol



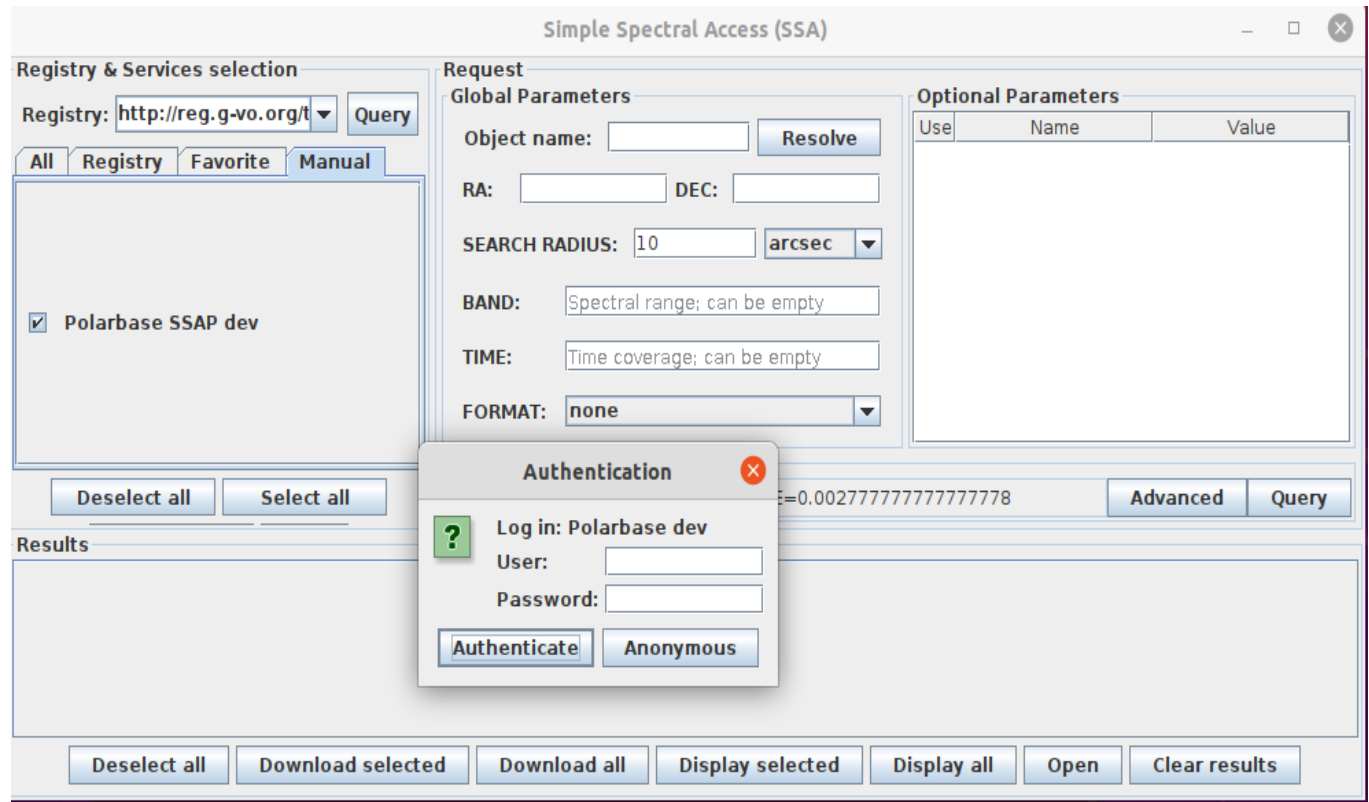
Authentication

- Get the Java TOPCAT library authentication given by Mark Taylor
- Add it to the maven repository of CASSIS
- Add it as dependency and used in SSAP CASSIS Module

```
<dependency>  
  <groupId>uk.ac.starlink</groupId>  
  <artifactId>auth</artifactId>  
  <version>2022-04-12-4f22b38ca</version>  
  ..  
  .
```

```
>  Jython-Editor -~/Developp  
>  obstap -~/Developpements  
>  Parent -~/Developpements  
>  rawvo -~/Developpements/  
>  ssap -~/Developpements/C  
>  VOTableLib [votable] -~/D  
>  cassis-file  
   fitClient
```

- Very easy to integrate
 - No other dependency



=> Needs services providing spectra that implement the different possibilities of authentication defined by the IVOA protocol to test the library

Links

- OVGSO : <https://ov-gso.irap.omp.eu/>
- CASSIS : <http://cassis.irap.omp.eu/>
- VESPA : <https://vespa.obspm.fr/>
- VAMDC : <https://vamdc.org/>
- LineTAP :
<https://github.com/ivoa-std/LineTAP>
- IVOA authentication :
<https://github.com/ivoa-std/SSO>