CASSIS Aladin Plugin

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Summary

- Why this plugin ?
- How it works
- Demonstration
- What's next ?
- Links

Why this plugin ?

- Pierre Fernique contact Jean-Michel Glorian in January 2021
  - Fix bug on API plugin in Aladin 11 beta
  - Discussion in Aladin and CDS Team to get VO tools specially for hyperspectral radio cube, to extract spectra and to identify lines
  - An old plugin “QuickViz” developed in 2013 was a candidate to do that, but was not maintained
  - The CASSIS Team retrieved the source of this plugin in 2014

- Question of Pierre>
  Have you done something with it ?

- Response of Jean-Michel>
  No, but we would like also to deal with hyperspectral cubes especially for ALMA data

  => All agree to say: Do not create a new tool for spectral cubes !

How it works 1/2

- Discover and display cubes from the VO using SIAv2 and OBS-TAP from the local machine
- Apply cutout on data cube with Datalink and SODA
- Select a region with spec, phot and draw with Aladin tool
- Interpret the spatial dimension

- Discover and display spectra from the VO using SSAP and EPN-TAP or from the local machine
- Apply spectral tools like fitting a curve
- Line identification using VAMDC or SLAP
- Select or zoom in the spectral range
- Interpret the spectral and flux dimension

How it works 2/2

- Using SAMP

- Using API plugin of Aladin
  - Both applications share the same Java virtual machine share the memory buffers and can communicate instructions

- Send events when
  - the stack is changed
  - The cursor is moved
  - A position or region is selected or removed
- Listen Aladin / CASSIS events
- Compute spectra and send them to CASSIS
- Send instructions to Aladin/CASSIS depends on the events received
- Change the color of spectra
- Zoom in the spectra
- Select a spectral range
- Select, remove spectra

Demonstration

- Make lines identification on a Muse Hyperspectral DataCube from ESO service
  - Using target : V* V2423 Ori or JW 756 : SESAME, SIMBAD
  - Find a MUSE cube in the ESO TAP service : REG TAP, OBS-TAP
  - Apply cutout on the cube (spatial and spectral) : Datalink and SODA
  - Install and run CASSIS plugin
  - Extract spectra from the selection region in Aladin using spect, phot and draw tool and sent them to CASSIS
  - Move the cursor In Aladin depend on the selected spectrum in CASSIS
  - Move the slide in Aladin in the spectral dimension, when user zoom or click on a spectrum in CASSIS
  - Move the selection in Aladin and see the evolution of the spectrum in CASSIS
  - Change color of a spectrum in CASSIS to change the region color in Aladin
  - Remove selection/spectrum from Aladin or CASSIS.
  - Create Image in Aladin when selected a spectral range in CASSIS
  - Customize the display of line informations in CASSIS
  - Doing line identification in CASSIS using NIST VAMDC service

What's next ?

- Manage multiple cubes
- Improve the display of each pixels selected in a phot or a draw region
- Manage the spectral range selection between CASSIS and Aladin
- Ask users more confirmation in the units used to interpret the Cube
- Fix bugs :-)

=> For any problems,
Please contact us cassis-team@irap.omp.eu

Links

- CASSIS
  http://cassis.irap.omp.eu
- OVGSO-DC
  https://ov-gso.irap.omp.eu/
- IVOA
  http://www.ivoa.net
- VAMDC
  http://portal.vamdc.org
- NIST
  https://physics.nist.gov:8000/nodes/asd/tap/
- Aladin
  https://aladin.u-strasbg.fr/
- SESAM
  http://sesam.obspm.fr/