

# **OAJ Publishing Registry and VO Services Validation**

**Tamara Civera Lorenzo**

**Scientific Database and Web Access Engineer (CEFCA)**

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# CEFCA and the OAJ

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- CEFCA (Centro de Estudios de Física del Cosmos de Aragón):
  - Spanish institution for research in Astrophysics and Cosmology
  - Focused on the technological development and operation of the Observatorio Astrofísico de Javalambre (OAJ, Teruel, Spain) and on its scientific exploitation.



# Telescopes and instrumentation

## JAST80 (Javalambre Auxiliary Telescope) + T80Cam

FoV 2deg

CCD 9.2k-by-9.2k, 10  $\mu\text{m}/\text{pix}$



## JST250 (Javalambre Survey Telescope) + JPCam

FoV 3deg

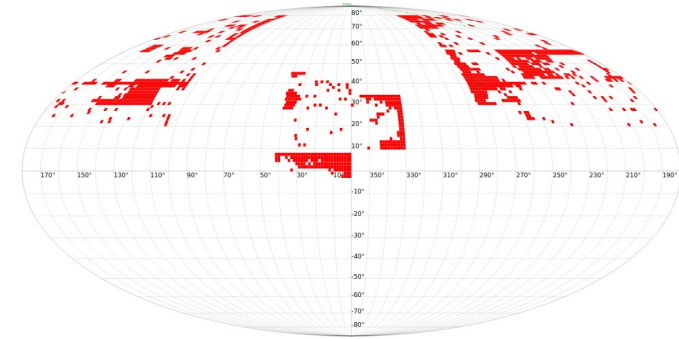
14 CCD-mosaic



# J-PLUS and J-PAS Surveys

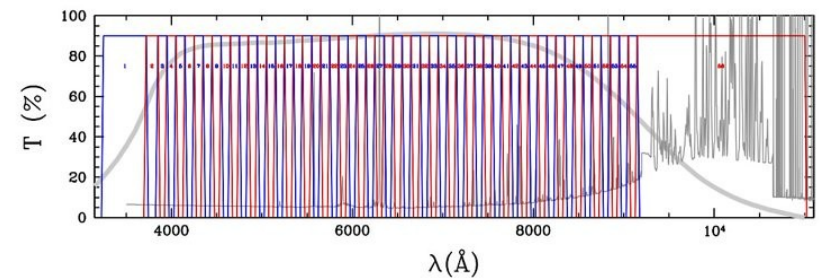
- **J-PLUS:** Javalambre-Photometric Local Universe Survey

- Photometric sky survey of 8500 deg<sup>2</sup>
- JAST80 + T80Cam
- 12 broad, intermediate and narrow band filters
- <http://www.j-plus.es>



- **J-PAS:** Javalambre Physics of the Accelerating Universe Astrophysical Survey

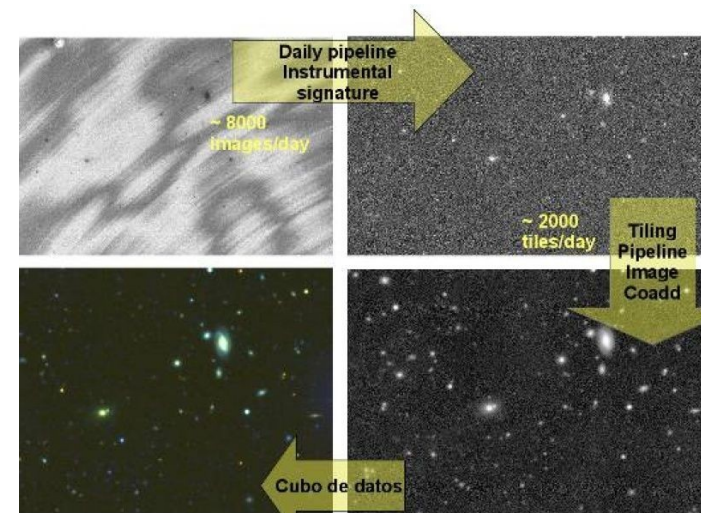
- Photometric sky survey of 8500 deg<sup>2</sup>
- JST250 + JPCam
- 54 narrow and 5 broad band filters
- <http://www.j-pas.org>





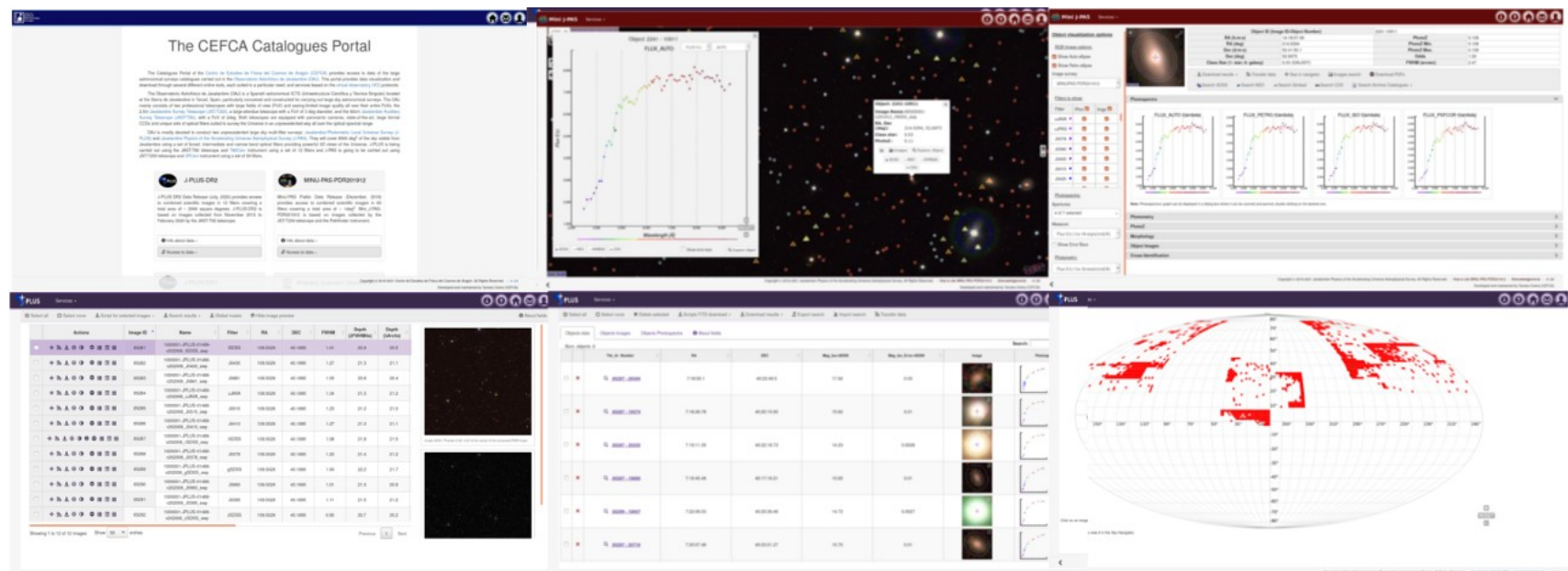
# Data Processing and Storage

- Daily data processing and full DR re-processing
- Long-term storage



# Data Publication

- **Web portal:** <https://archive.cefca.es>
- Sky navigator, image search, object list search, object visualization, asynchronous queries, custom statistical maps, coverage map, MOC download
- **VO services:** TAP, SIAP, SCS, HiPS



# CEFCA Publishing Registry

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- **Url:** [https://archive.cefca.es/catalogues/registry\\_harvest.html](https://archive.cefca.es/catalogues/registry_harvest.html)
- **Working since:** February 2021
- Implemented in python as part of the CEFCA Catalogues portal
- One resource per survey and DR:
  - With all the VO services available for it: TAP, SIAP, SCS, HiPS
  - 3 resources: J-PLUS DR2, J-PLUS DR1, Minij-PAS PDR201912
  - Resources dynamically generated



# CEFCA Publishing Registry

```
<ri:Resource xmlns:ri="http://www.ivoa.net/xml/RegistryInterface/v1.0" xmlns:cs="http://www.ivoa.net/xml/ConeSearch/v1.0"
  <title>J-PLUS DR2 Catalogue (July, 2020)</title>
  <shortName>J-PLUS-DR2</shortName>
  <identifier>ivo://CEFCA/j-plus/J-PLUS-DR2</identifier>
  <curation>
  <content>
  <rights>Copyright © 2015-2020 Javalambre Photometric Local Universe Survey. All Rights Reserved.</rights>
  <capability standardID="ivo://ivoa.net/std/VOSI#capabilities">
  <capability standardID="ivo://ivoa.net/std/VOSI#availability">
  <capability standardID="ivo://ivoa.net/std/TAP" xsi:type="tr:TableAccess">
  <capability standardID="ivo://ivoa.net/std/TAP" xsi:type="tr:TableAccess">
  <capability standardID="ivo://ivoa.net/std/VOSI#availability">
  <capability standardID="ivo://ivoa.net/std/VOSI#capabilities">
  <capability standardID="ivo://ivoa.net/std/VOSI#tables">
  <capability standardID="ivo://ivoa.net/std/DALI#examples">
  <capability standardID="ivo://ivoa.net/std/SIA" xsi:type="sia:SimpleImageAccess">
  <capability standardID="ivo://ivoa.net/std/SIA#query-2.0" xsi:type="sia:SimpleImageAccess">
  <capability standardID="ivo://ivoa.net/std/SIA" xsi:type="sia:SimpleImageAccess">
  <capability standardID="ivo://ivoa.net/std/DataLink#links-1.0">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/ConeSearch" xsi:type="cs:ConeSearch">
  <capability standardID="ivo://ivoa.net/std/hips#hips-1.0">
  <capability standardID="ivo://ivoa.net/std/hips#hips-1.0">
  <coverage>
</ri:Resource>
```





# CEFCA Publishing Registry

The screenshot displays the Aladin v11.0 software interface. On the left, a tree view shows 'Available data → 26315' with various categories like 'Image', 'Gamma-ray', 'X-ray', etc. The 'SIA2 (image|cube) → 2' category is highlighted with a red circle. In the center, a 'Command' bar is visible. The main window shows a star field with the text 'Aladin Sky Atlas - v11.0' and a description of the software. A modal window is open in the foreground, displaying details for the 'J-PLUS DR2 Catalogue (July, 2020)'. The modal window includes the following text: '\*New release J-PLUS DR2 Catalogue (July, 2020) ...', 'Provenance: Copyright ? 2015-2020 Javalambre Photometric Local Universe Survey. All Rights Reserved.', 'Coverage: 2504°²', and 'Access mode & derived prod.' with radio buttons for 'by cone', 'custom' (selected), 'by cone', 'by criteria', and 'space cov.'. The URL 'cefca/j-plus/j-plus-dr2' and a 'Load' button are also visible. The modal window is also circled in red.



# VO Services Validation

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- All VO Services validated and improved before CEFCA Publishing Registry registration:
  - HiPS images and catalogues
  - Cone Search Services (SCS)
  - Simple Image Access Protocol v1.0 and v2.0 services (SIAP)
  - Table Access Protocol services (TAP) and obscure services
  - Datalink services
  - MOC files

# HiPS Images & Catalogues Validation

---

- **Validator used:**

- Program Hipslint.jar

- **Errors/warnings found:**

- HiPS images:

- ▶ Warning recommended keyword missing [hips\_creation\_date]
  - ▶ Solution: Adding them



# HiPS Images & Catalogues Validation

---

- **Validator used:**

- Program Hipslint.jar

- **Errors/warnings found:**

- HiPS images:

- ▶ Warning recommended keyword missing [hips\_creation\_date]
  - ▶ Solution: Adding them

```
$ java -jar Hipslint.jar http://archive.cefca.es/hips_jplus_DR2/
INFO : ===== CHECKING HiPSserver [http://archive.cefca.es/hips_jplus_DR2/] =====
INFO : *** [http://archive.cefca.es/hips_jplus_DR2/] is fully IVOA HiPS 1.0 compatible
$ java -jar Hipslint.jar https://archive.cefca.es/catalogues/jplus-dr2/hips_cat_service
INFO : ===== CHECKING HiPSserver [https://archive.cefca.es/catalogues/jplus-dr2/hips_cat_service] =====
INFO : *** [https://archive.cefca.es/catalogues/jplus-dr2/hips_cat_service] is fully IVOA HiPS 1.0 compatible
```

# HiPS Images & Catalogues Validation

---

- **Errors/warnings found:**
  - HiPS catalogues:
    - ▶ Warning recommended keyword missing [hips\_creation\_date]
      - ▶ Solution: Adding them
    - ▶ Error found when there were not objects
      - Expected 404 HTTP error / sent an empty file with header
      - ▶ Solution: sending an empty file without header to avoid problems with AladinLite



# HiPS Images & Catalogues Validation

---

- **Errors/warnings found:**

- HiPS catalogues:

- ▶ Warning recommended keyword missing [hips\_creation\_date]

- ▶ Solution: Adding them

- ▶ Error found when there were not objects

- Expected 404 HTTP error / sent an empty file with header

- ▶ Solution: sending an empty file without header to avoid problems with AladinLite

```
INFO : ===== CHECKING HiPSserver [http://archive.cefca.es/hips_jplus_DR2/] =====
INFO : *** [http://archive.cefca.es/hips_jplus_DR2/] is fully IVOA HiPS 1.0 compatible
INFO : ===== CHECKING HiPSserver [https://archive.cefca.es/catalogues/jplus-dr2/hips_cat_service] =====
INFO : *** [https://archive.cefca.es/catalogues/jplus-dr2/hips_cat_service] is fully IVOA HiPS 1.0 compatible
```

# Cone Search Services Validation

---

- **Validators used:**

- Paris PADC portal validator
- ESA Euro-VO portal validator

- **Errors/warnings found:**

- ▶ ID field: not a valid value of the atomic type 'xs:ID'
  - ▶ Solution: changing numbers by columns names

# Cone Search Services Validation



## VOTable Validation Service

<https://archive.cefca.es/catalogues/vo/cone/jplus-dr2/JPLUS.MAGABDUALOBJ?RA=0&DEC=0&SR=0.5>

```
1 <VOTABLE version="1.3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.ivoa.net/xml/VOTable/v1.3" xsi:schemaLocation="http://www.ivoa.net/xml/VOTable/v1.3 http://www.ivoa.net/xml/VOTable/VOTable-1.3.xsd">
2 <RESOURCE name="CEfCA Catalogue Portal" type="results">
3 <INFO name="QUERY_STATUS" value="OK"></INFO>
4 <TABLE ID="cone search result" name="cone search results"><DESCRIPTION>Cone Search: jplus-dr2 JPLUS.MAGABDUALOBJ RA=0.000000 DEC=0.000000 SR=0.500000 - 2021-05-20 13:57:03.788203</DESCRIPTION>
5 <FIELD ID="TILE_ID-NUMBER" name="TILE_ID-NUMBER" datatype="char" ucd="ID_MAIN" unit="" arraysize="**">
6 <DESCRIPTION>Identifier of the Tile image where the object was detected - Number identifier assigned by SExtractor for the object in the image</DESCRIPTION>
7 </FIELD>
8 <FIELD ID="TILE_ID" name="TILE_ID" datatype="int" ucd="meta.id;obs.image;meta.main" unit="">
9 <DESCRIPTION>Identifier of the Tile image where the object was detected</DESCRIPTION>
10 </FIELD>
11 </TABLE>
12 </RESOURCE>
13 </VOTABLE>
```

SUCCESS: valid VOTable 1.3!

SUCCESS: valid Simple Cone Search 1.03!

## Euro-VO Registry



STANDALONE VALIDATION

Service Type:  Access URL:

Service Access URLs

Service Type	Standard Version	Compliance	Access URL	Validated on	Duration in ms	Validate Now	Remove Job
SCS	1.03	<b>Compliant (A++)</b>	<a href="https://archive.cefca...S.MAGABDUALOBJ">https://archive.cefca...S.MAGABDUALOBJ</a>	13:42:01 20/05/2021	1559	<input type="button" value="Run"/>	<input type="button" value="Remove"/>

Validation

Val Code	Val Type	Val Result	Description
2.2a-i	REQUIREMENT	Pass	The service must respond with an XML document in the VOTable format [for the zero URL]
2.2a-ii	REQUIREMENT	Pass	
2.2b-i	REQUIREMENT	Pass	
2.2b-ii	REQUIREMENT	Pass	
2.2c-i	REQUIREMENT	Pass	
2.2c-ii	REQUIREMENT	Pass	
2.2c-iii	REQUIREMENT	Pass	

Validation URL: <https://archive.cefca.es/catalogues/vo/cone/jplus-dr2/JPLUS.MAGABDUALOBJ?RA=0&DEC=0&SR=0.000>




# Cone Search Services Validation

- **More errors and warnings**

- ▶ Euro-VO validator: Position used to validate is RA 0 & DEC 0

- ✘ Not solved: Problem when your survey has not data in those coordinates

Euro-VO Registry 

STANDALONE VALIDATION

Service Type:  Access URL:

Service Access URLs

Service Type	Standard Version	Compliance	Access URL	Validated on	Duration in ms	Validate Now	Remove Job
SCS	1.03	<b>Partially Compliant (C--)</b>	<a href="https://archive.cefc...S.MAGABDUALOBJ">https://archive.cefc...S.MAGABDUALOBJ</a>	14:06:16 20/05/2021	2078	<input type="button" value="Run"/>	<input type="button" value="Remove"/>

Validation

Val Code	Val Type	Val Result	Description
2.2a-i	REQUIREMENT	Pass	The service must respond with an XML document in the VOTable format [for the effective URL]
2.2a-ii	REQUIREMENT	Could not be tested	
2.2b-i	REQUIREMENT	Could not be tested	Validation URL
2.2b-ii	REQUIREMENT	Could not be tested	
2.2c-i	REQUIREMENT	Could not be tested	
2.2c-ii	REQUIREMENT	Could not be tested	Details
2.2c-iii	REQUIREMENT	Could not be tested	
2.3b-i	REQUIREMENT	Pass	Could not be tested due to effective content retrieval problem
2.3b-ii	REQUIREMENT	Could not be tested	
.effc.mime-legal	REQUIREMENT	Could not be tested	
.effc.mime-not-as-borderline-may	recommendation	Could not be tested	
.effc.mime-not-as-may	WARNING	Could not be tested	
.effc.mime-should	recommendation	Could not be tested	
.effc.xml	REQUIREMENT	Could not be tested	

# SIAP v1 Services Validation

---

- **Validators used:**

- Paris PADC portal validator
- ESA Euro-VO portal validator

- **Errors/warnings found:**

- ▶ Missing some recommended fields:

- BandPass\_HiLimit, BandPass\_LoLimit, Image\_MJDateObs,...

- ▶ Solution: adding all these fields

- ▶ Error if format was not specified in the query

- ▶ Solution: changing to use ALL format as default instead of returning an error

# SIAP v1 Services Validation

---

- **Errors/warnings found:**
  - Euro-VO validator:
    - ▶ 500 Internal Server Error: The call failed on the server.; see server log for details
      - ▶ Solution: adding '?' at the end of the service url
    - ▶ 4.2.4.b.iii: Exactly one field should have ucd='VOX:WCS\_CoordProjection', with datatype='char', and arraysize='3'
      - ▶ Solution: Writing Euro-VO team who solve the problem in the validator



# SIAP v1 Services Validation



## VOTable Validation Service

<https://archive.cefca.es/catalogues/vo/siap/jplus-dr2?POS=0.0%2C0.0&SIZE=1.0%2C1.0&FORMAT=ALL>

```
<VOTABLE version="1.3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.ivoa.net/xml/VOTable/v1.3" xsi:schemaLocation="http://www.ivoa.net/xml/VOTable/v1.3 http://www.ivoa.net/xml/VOTable/VOTable-1.3.xsd">
<RESOURCE name="CEFA Catalogue Portal" type="results">
<INFO name="QUERY_STATUS" value="OK">Successful Search</INFO>
<TABLE ID="siap_search_result" name="siap_search_results"><DESCRIPTION>SIAP search: RA=0.000000 DEC=0.000000 SIZE=1.0,1.0 - 2021-05-20 16:15:54.411983</DESCRIPTION>
<FIELD ID="Name" name="Name" datatype="char" ucd="VOX:Image Title" unit="" arraysize="">
<DESCRIPTION>Name of the image with a short description of the service.</DESCRIPTION>
</FIELD>
<FIELD ID="Telescope Instrument" name="Telescope Instrument" datatype="char" ucd="INST_ID" unit="" arraysize="">
<DESCRIPTION>Telescope name, Instrument name.</DESCRIPTION>
```

SUCCESS: valid VOTable 1.3!

SUCCESS: valid Simple Image Access 1.0!

The screenshot shows the Euro-VO Registry interface. At the top, it says "STANDALONE VALIDATION". Below that, there's a search bar with "Service Type" set to "sia:SimpleImageAccess v1" and an "Access URL" field. A table titled "Service Access URLs" shows the following entry:

Service Type	Standard Version	Compliance	Access URL	Validated on	Duration in ms	Validate Now	Remove Job
SIA	1.0	Compliant (A++)	<a href="https://archive.cefca.es/catalogues/vo/siap/jplus-dr2">https://archive.cefca.es/catalogues/vo/siap/jplus-dr2</a>	16:01:33 20/05/2021	1584	Run	Remove

Below the table is a "Validation" section with a table of validation results:

Val Code	Val Type	Val Result
4.2.1a	REQUIREMENT	Pass
4.2.1b	recommendation	Pass
4.2.2a	WARNING	Pass
4.2.2a-gl	recommendation	Pass
4.2.2b	recommendation	Pass
4.2.4.a.i	REQUIREMENT	Pass
4.2.4.a.ii	WARNING	Pass
4.2.4.a.iii	WARNING	Pass
4.2.4.a.iv	REQUIREMENT	Pass
4.2.4.a.ix	REQUIREMENT	Pass
4.2.4.a.v	REQUIREMENT	Pass

On the right side of the validation table, there are sections for "Description" (The service must respond with an XML document in the VOTable format [for the effective URL]), "Validation URL", and "Details" (Could not be tested due to effective content retrieval problem).

# SIAP v2 Services Validation

---

- **Validators used:**

- Paris PADC portal validator

- **Errors/warnings found:**

- ▶ ID field: not a valid value of the atomic type 'xs:ID'
  - ▶ Solution: changing numbers by columns names
- ▶ Some fields not well defined
  - ▶ Solution: adding the utype attribute

# SIAP v2 Services Validation



## VOTable Validation Service

<https://archive.cefca.es/catalogues/vo/siap2/jplus-dr2?REQUEST=query&POS=CIRCLE+0.0+0.0+1.5&DPTYPE=image&MAXREC=5>

```
1 <VOTABLE version="1.3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.ivoa.net/xml/VOTable/v1.3" xsi:schemaLocation="http://www.ivoa.net/xml/VOTable/v1.3 http://www.ivoa.net/xml/VOTable/VOTable-1.3.xsd">
2 <RESOURCE name="CEFCa Catalogue Portal" type="results">
3 <INFO name="QUERY_STATUS" value="OK">Successful Search</INFO>
4
5
6 <TABLE ID="siap v2 search result" name="siap v2 search result"><DESCRIPTION>SIAP v2 search: {'DPTYPE': ['image'], 'REQUEST': ['query'], 'POS': ['CIRCLE 0.0 0.0 1.5'], 'MAXREC': ['5']}</DESCRIPTION>
7 <DESCRIPTION>Data product type</DESCRIPTION>
8 </FIELD>
9 <FIELD ID="dataprodukt subtype" name="dataprodukt subtype" datatype="char" ucd="meta.id" unit="" arraysize="" utype="obscure:ObsDataset.dataProductSubtype">
10 <DESCRIPTION>Data product subtype</DESCRIPTION>
11 </FIELD>
```

SUCCESS: valid VOTable 1.3!

SUCCESS: valid Simple Image Access 2.0!



# TAP and Obscore Services Validation

---

- **Validators used:**
  - Program taplint (stilts)
  - ESA Euro-VO portal validator
- **Errors/warnings found in Obscore:**
  - ▶ Some UCDs were wrong: obs\_publisher\_did, publisher\_id, ...
    - ▶ Solution: updating the UCDs of that columns
  - ▶ Some fields not well defined
    - ▶ Solution: adding the utype attribute

# TAP and Obscure Services Validation

---

- **Errors/warnings found in TAP:**
  - ▶ E-TMS-TST0-1: Missing required table TAP\_SCHEMA.schemas
    - ▶ Solution: changing the names of the columns returned in the TAP\_SCHEMA query result:  
from “schema\_name.table\_name” to “table\_name”
  - ▶ E-UWS-DENO-1: Deleted job gives HTTP response 200 not 404
    - ▶ Solution: Changing the job deletion implementation to not only process HTTP DELETE action but also HTTP POST and GET actions with parameter “action='DELETE'”

# TAP and Obscure Services Validation

---

- **Errors/warnings found in TAP:**
  - ▶ E-UWS-GBDX-1: Invalid content was found starting with element 'uws:runId'
    - ▶ Solution: Changing the order of the elements in the jobs returned result
  - ▶ W-EXA-EXVL-4 Validation syntax error for example
    - ✘ Not solved: warning due to the use a custom "structure" called "enumeration" to define the filters. For example:  
MAG\_AUTO[jplus::rSDSS]



# TAP and Obscure Services Validation

---

```
$ java -jar stilts.jar taplint https://archive.cefca.es/catalogues/vo/tap/jplus-dr2
This is STILTS taplint, 3.4/308a680 (2021-01-11)
Static report types: ERROR(141), WARNING(57), INFO(25), SUMMARY(9), FAILURE(23)

Section TMV: Validate table metadata against XML schema
I-TMV-VURL-1 Validating https://archive.cefca.es/catalogues/vo/tap/jplus-dr2/tables as tableset (http://www.ivoa.net/xml/VODataService/v1.1)
S-TMV-VALI-1 SAX report: warnings 0, errors 0, fatal 0

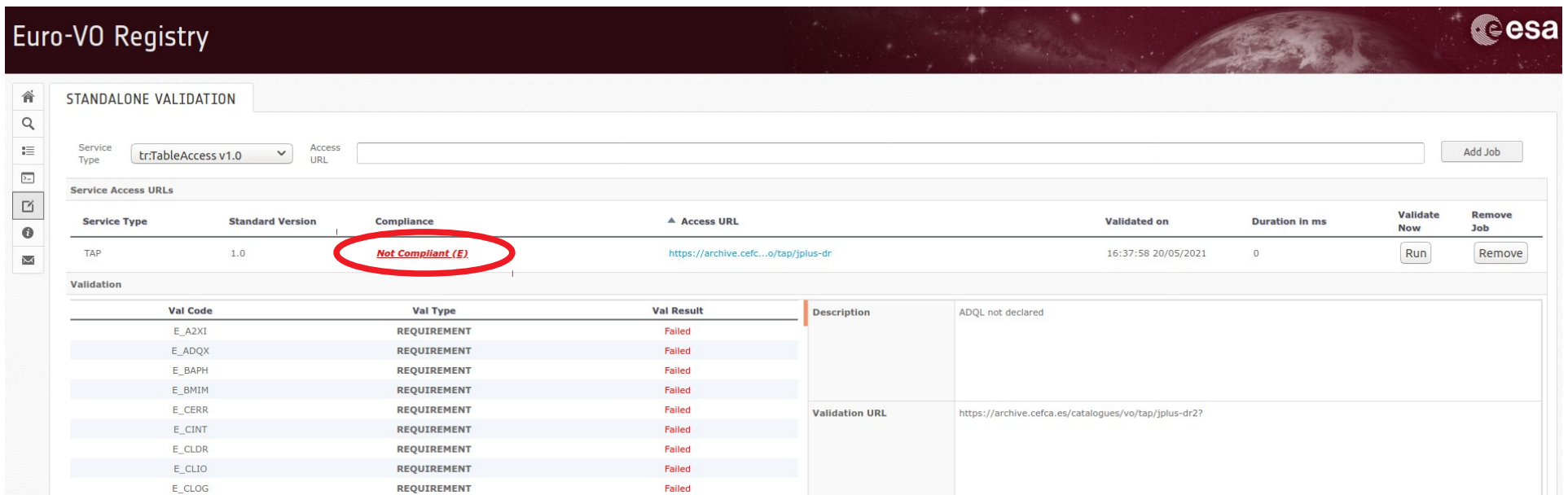
.....

I-EXA-QGET-9 Query GET URL: https://archive.cefca.es/catalogues/vo/tap/jplus-dr2/sync?LANG=ADQL&QUERY=SELECT+m.alpha_j2000%2C+m.delta_j2000%2C-
ualObj+m%2C+jplus.TileImage+i%0AWHERE+m.tile_id+%3D+i.tile_id+AND+CONTAINS%28POINT%28%27%27%2C+m.alpha_j2000%2C+m.delta_j2000%29%2C+CIRCLE%28%2
S-EXA-XNUM-1 Found 9 examples in 1 document
S-EXA-XVAL-1 Syntax validity success/attempt: 5/9, Symbol validity success/attempt: 5/5, Execution success/attempt: 9/9

Total: Errors: 0; Warnings: 5; Infos: 189; Summaries: 23; Failures: 1
```

# TAP and Obscure Services Validation

- **Errors/warnings found in TAP:**
  - ▶ Euro-VO validator:
    - ✘ Not solved: Indicates not compliant



The screenshot shows the Euro-VO Registry interface. At the top, there's a header with the ESA logo. Below it, the page is titled "STANDALONE VALIDATION". A search bar shows "Service Type" as "tr:TableAccess v1.0" and "Access URL" as an empty field. Below the search bar, there's a table of "Service Access URLs". The table has columns: "Service Type", "Standard Version", "Compliance", "Access URL", "Validated on", "Duration in ms", "Validate Now", and "Remove Job". The "Compliance" column for the "TAP" service is circled in red and contains the text "Not Compliant (E)". Below the table, there's a "Validation" section with a table of validation results. The table has columns: "Val Code", "Val Type", "Val Result", "Description", and "Validation URL". The "Val Result" column shows "Failed" for all validation codes. The "Description" column shows "ADQL not declared" and "Validation URL" shows "https://archive.cefca.es/catalogues/vo/tap/jplus-dr?".

Service Type	Standard Version	Compliance	Access URL	Validated on	Duration in ms	Validate Now	Remove Job
TAP	1.0	Not Compliant (E)	<a href="https://archive.cefca...o/tap/jplus-dr">https://archive.cefca...o/tap/jplus-dr</a>	16:37:58 20/05/2021	0	Run	Remove

Val Code	Val Type	Val Result	Description	Validation URL
E_A2XI	REQUIREMENT	Failed	ADQL not declared	<a href="https://archive.cefca.es/catalogues/vo/tap/jplus-dr?">https://archive.cefca.es/catalogues/vo/tap/jplus-dr?</a>
E_ADQX	REQUIREMENT	Failed		
E_BAPH	REQUIREMENT	Failed		
E_BMIM	REQUIREMENT	Failed		
E_CERR	REQUIREMENT	Failed		
E_CINT	REQUIREMENT	Failed		
E_CLDR	REQUIREMENT	Failed		
E_CLIO	REQUIREMENT	Failed		
E_CLOG	REQUIREMENT	Failed		

# Datalink services Validation

---

- **Validator used:**
  - Program datalinklint (stilts)
- **Errors/warnings found:**
  - ▶ No errors/warnings found





# MOC Validation

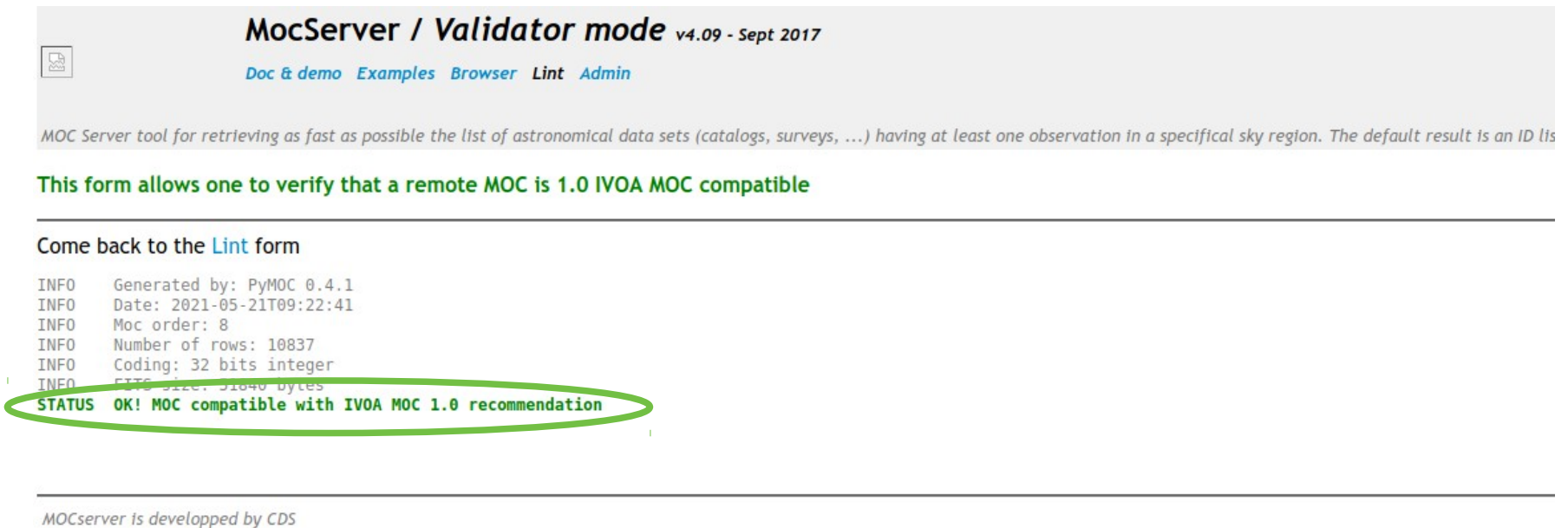
---

- **Validator used:**
  - MOCServer portal
- **Errors/warnings found:**
  - ▶ No errors/warnings found

# MOC Validation

---

- **Validator used:**
  - MOCServer portal
- **Errors/warnings found:**
  - ▶ No errors/warnings found



**MocServer / Validator mode** v4.09 - Sept 2017

[Doc & demo](#) [Examples](#) [Browser](#) [Lint](#) [Admin](#)

MOC Server tool for retrieving as fast as possible the list of astronomical data sets (catalogs, surveys, ...) having at least one observation in a specific sky region. The default result is an ID list.

This form allows one to verify that a remote MOC is 1.0 IVOA MOC compatible

---

Come back to the [Lint](#) form

```
INFO    Generated by: PyMOC 0.4.1
INFO    Date: 2021-05-21T09:22:41
INFO    Moc order: 8
INFO    Number of rows: 10837
INFO    Coding: 32 bits integer
INFO    FITS size: 31840 bytes
STATUS OK! MOC compatible with IVOA MOC 1.0 recommendation
```

---

MOCserver is developed by CDS



# A few lessons learned

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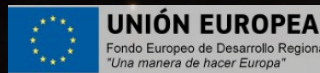
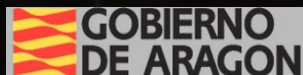
- Although services seem to work well, **it is very important to pass validators** to know if they are fully protocol compliant.
- Validation process not only helps to make services more compliant but also to improve them:
  - Descriptions, units, ... improvements
  - SCS: columns returned in each verbosity level
- In validation process, sometimes, **it is difficult to understand the error** or problem of your services.
  - **Thank you to all the validators people** that have help me to understand and solve the errors and warnings.

# A few lessons learned

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- It could be very interesting to have **standalone validators** for all the services to validate them before production deployment.
- It could be very interesting that validators return a **response easily understandable by machines**.
- For developers to be able to implement automatic tests to pass the validators after every change, production deployment,...

# THANK YOU!





# THANK YOU!

Questions or  
comments?



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