

Euro-VO Resources Validation Status

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Issue/Revision: 1.0

Reference: VO Service Compliance Statistics

Status: Issued

ESA UNCLASSIFIED - Releasable to the Public

Euro-VO Registry



HOME

WELCOME TO THE EURO-VO FULL HARVESTABLE VO RESOURCE REGISTRY

The new Euro-VO Registry offers you the following main functionalities:

- **For astronomers and end users:** Search the VO resources through the Simple Search Panel, the Advanced Search or through the expert ADQL Search Panel.
- **For data publishers:** Host your resources with EuroVO, create and update your own VO Resources via a password-protected interface, check their compliance with the associated IVOA standards.
- **For VO Applications developers and for other IVOA Registries:** Harvest the registry, retrieve individual resources, or search the registry through its programmatic OAI-PMH, RI1 and RegTAP interfaces.



TOP FEATURES



SEARCH

Search through all data.



ADQL SEARCH

Search with ADQL query through all data.



STANDALONE VALIDATION

This page is used for validating standalone.



INFO

Information related to EuroVO Registry Services.



CONTACT

For questions, suggestions or problem reports, contact our [EuroVO Registry Support](#).

Compliance mappings



- **Compliant** (no requirement fails)

- A++** no criterion fails
- A+** no requirement, warning or recommendation fails
- A** no requirement or warning fails, but at least one recommendation fails
- B** no requirement fails, but at least one warning fails

- **partially compliant** (some (but not all) requirements fail)

- C** at least one (1) req fails, but at least one (1) req equally succeeds
- C-** at least two (2) reqs fail, but at least one (1) req equally succeeds
- C--** at least three (3) reqs fail, but at least one (1) req equally succeeds

- **not compliant** (all requirements fail)

- D** all reqs fail but some other criterion (of lesser importance) succeeds
- E** no criterion succeeds

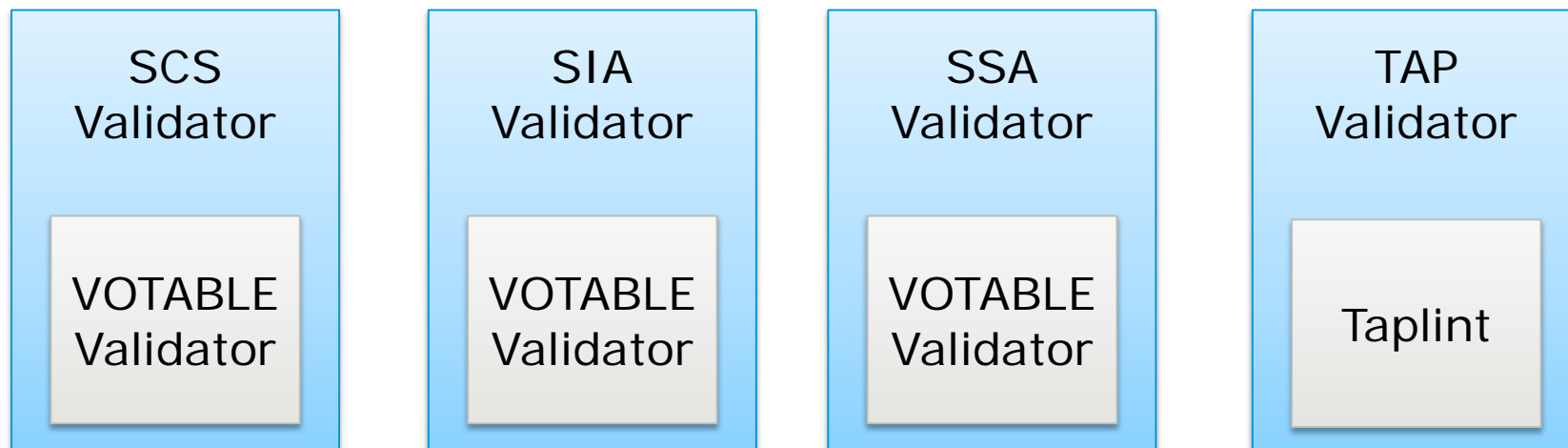
| Criterion Type | |
|----------------|---|
| name | description |
| REQUIREMENT | Tests drawn from 'MUST' statements in the respective standard |
| WARNING | Tests drawn from strongly encouraged 'SHOULD' statements in the respective standard |
| RECOMMENDATION | Tests drawn from 'SHOULD' statements in the respective standard |
| EXTRA | Criteria not defined in the IVOA 'Service Validation' wiki |

Euro-VO Registry validators for protocols:

1. Simple Cone Search (SCS) v1.03
2. Simple Image Search (SIA) v1.0
3. Simple Spectral Access (SSA) v1.1
4. Table Access Protocol (TAP) v1.0 and v1.1 using Taplint v3.2.

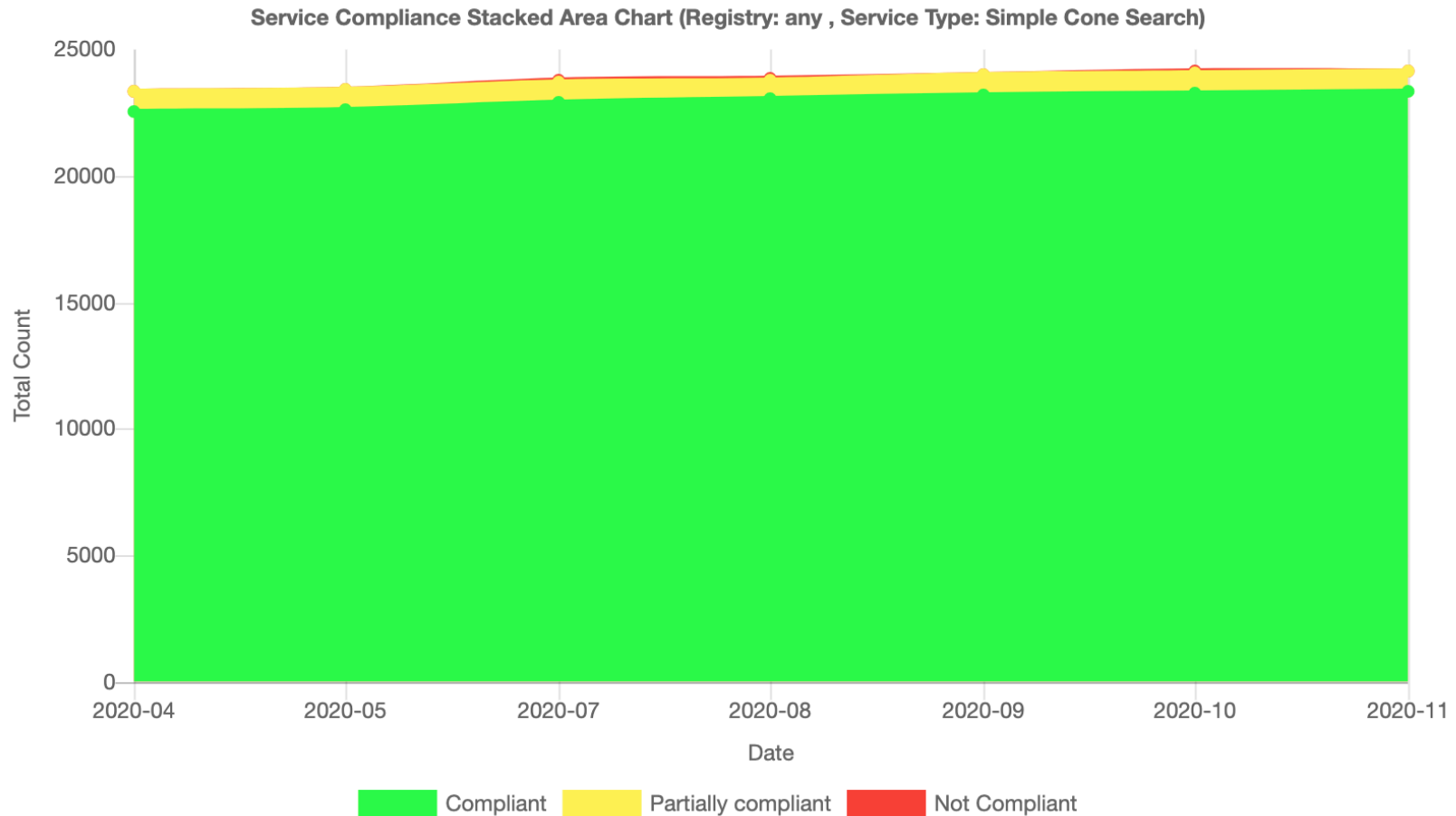
We are planning the following implementations & updates for updated standards:

1. Implement Simple Image Search (SIA) v2.0
2. Implement Simple Spectral Access (SSA) v1.3
3. Update Table Access Protocol (TAP) v1.0 and v1.1 using latest Taplint v3.3.



VOTable v1.2 and 1.3 validator as part of all the above protocols

SCS Services Compliance – all registries

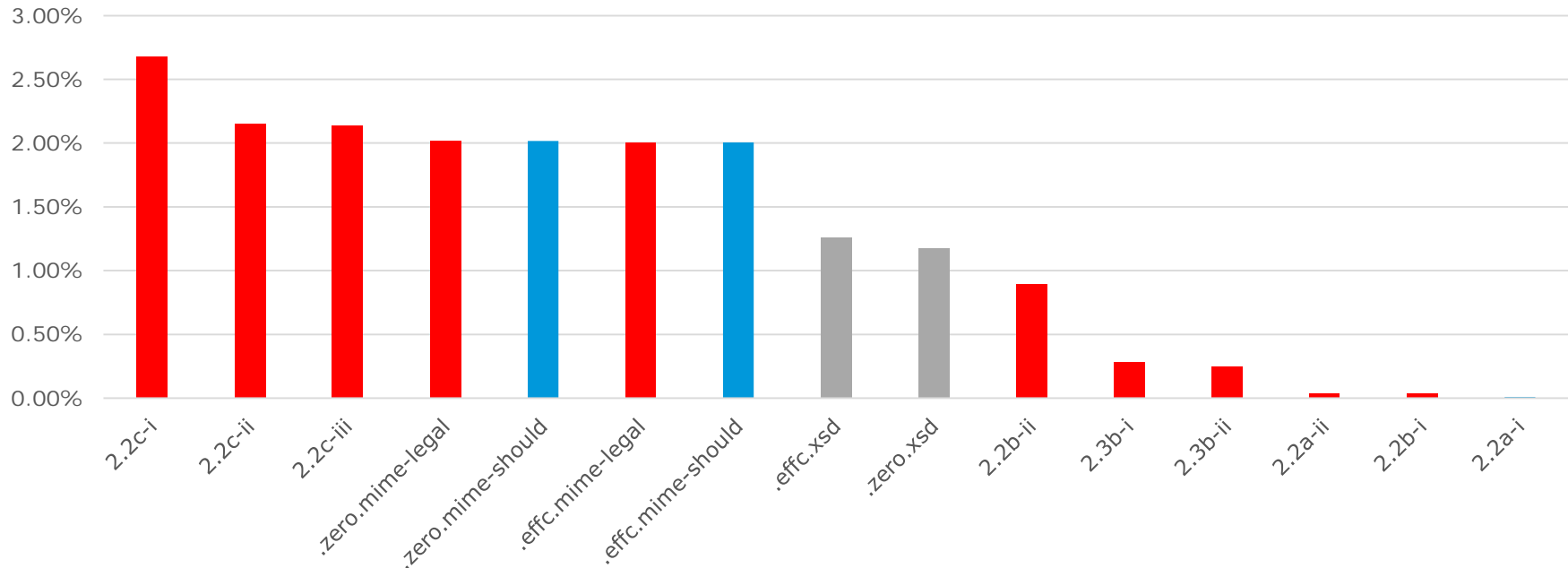


**Most of the services are compliant...
No particular action needed**

SCS Services Validation Analysis



Validation criteria failed for SCS Services



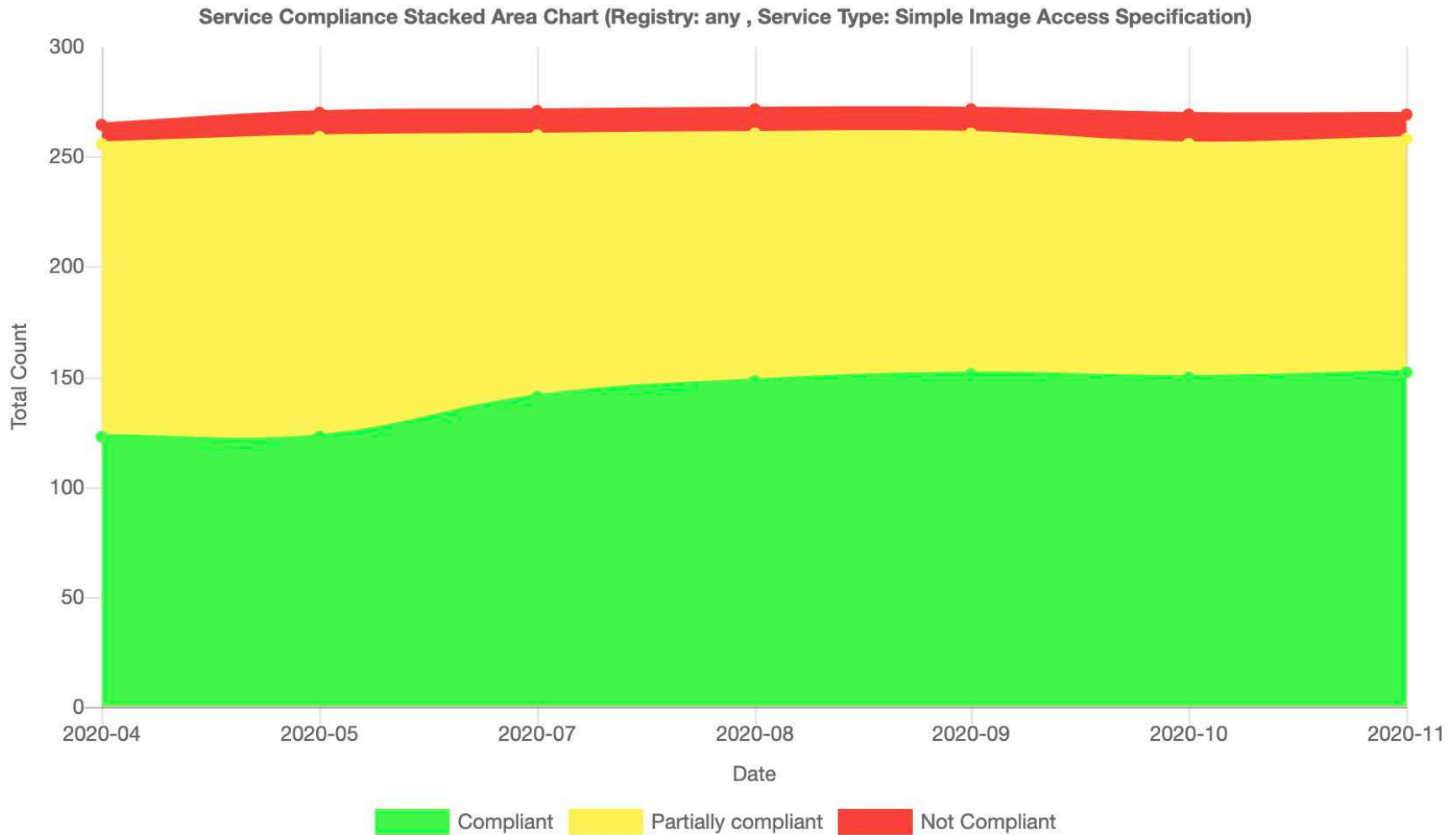
| Criterion Type | |
|----------------|---|
| name | description |
| REQUIREMENT | Tests drawn from 'MUST' statements in the respective standard |
| WARNING | Tests drawn from strongly encouraged 'SHOULD' statements in the respective standard |
| RECOMMENDATION | Tests drawn from 'SHOULD' statements in the respective standard |
| EXTRA | Criteria not defined in the IVOA 'Service Validation' wiki |

SCS Services Validation Analysis



| val_code | criterion_type | description |
|-------------------|----------------|---|
| 2.2c-i | REQUIREMENT | The VOTable MUST comply with these conditions: [...] Exactly one FIELD must have ucd='ID_MAIN', with an array character type (fixed or variable length) |
| 2.2c-ii | REQUIREMENT | The VOTable MUST comply with these conditions: [...] Exactly one FIELD must have ucd='POS_EQ_RA_MAIN', with type double |
| 2.2c-iii | REQUIREMENT | The VOTable MUST comply with these conditions: [...] Exactly one FIELD must have ucd='POS_EQ_DEC_MAIN', with type double |
| .zero.mime-legal | REQUIREMENT | The MIME type of the zero response has a legal value ('text/xml', 'text/xml;content=x-votable' or 'text/xml;votable') |
| .zero.mime-should | RECOMMENDATION | The MIME type of the zero response has the recommended value ('text/xml') |
| .effc.mime-legal | REQUIREMENT | The MIME type of the effective response has a legal value ('text/xml', 'text/xml;content=x-votable' or 'text/xml;votable') |
| .effc.mime-should | RECOMMENDATION | The MIME type of the effective response has the recommended value ('text/xml') |
| .effc.xsd | EXTRA | The effective response is XSD-valid XML |
| .zero.xsd | EXTRA | The zero response is XSD-valid XML |
| 2.2b-ii | REQUIREMENT | The effective response has to contain some data |
| 2.3b-i | REQUIREMENT | no INFO elements with @name='Error' should appear in the zero response |
| 2.3b-ii | REQUIREMENT | no INFO elements with @name='Error' should appear in the effective response |
| 2.2b-i | REQUIREMENT | The zero response contains no data |
| 2.2a-i | REQUIREMENT | The service must respond with an XML document in the VOTable format [for the zero URL] |
| 2.2a-ii | REQUIREMENT | The service must respond with an XML document in the VOTable format [for the effective URL] |

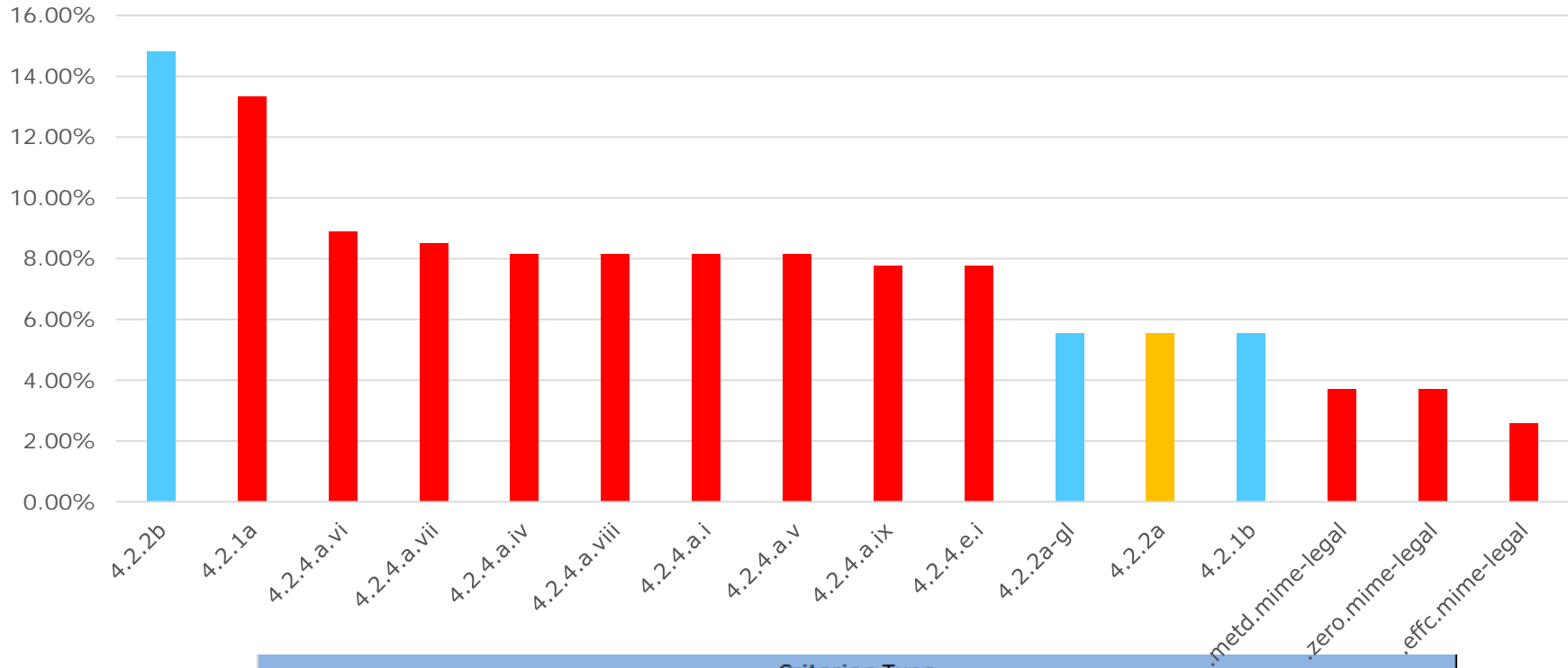
SIA Services Compliance – all registries



SIA Services Validation Analysis



Validation criteria failed for SIA Services



| Criterion Type | |
|--|---|
| name | description |
| ■ REQUIREMENT | Tests drawn from 'MUST' statements in the respective standard |
| ■ WARNING | Tests drawn from strongly encouraged 'SHOULD' statements in the respective standard |
| ■ RECOMMENDATION | Tests drawn from 'SHOULD' statements in the respective standard |
| ■ EXTRA | Criteria not defined in the IVOA 'Service Validation' wiki |

4.2.2b QUERY_STATUS value="OK"

- 15% of services failed

```
<VOTABLE xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://wisier.u-strasbg.fr/xml/VOTable-1.1.xsd">
  <INFO name="QUERY_STATUS" value="OK"/>
  <INFO name="FieldsUrl">http://...</INFO>
  <INFO name="CutOutUrl">http://...</INFO>
  <RESOURCE>
    <PARAM datatype="char" name="INPUT:POS" value="0.0,0.0" arraysize="*" />
    <PARAM datatype="char" name="INPUT:SIZE" value="0.000" arraysize="*" />
  </RESOURCE>
</VOTABLE>
```

Erratum to support both?

Wrong position it should be in RESOURCE not in VOTABLE

“The RESOURCE element should contain an INFO with name="QUERY_STATUS". Its value attribute should set to "OK" if the query executed successfully, regardless of whether any matching images were found. All other possible values for the value attribute are described in section 4.3 below.”

4.2.1 Tag type='results'

- 13% of services failed
- 4.2.1a **REQ**: The VOTable must contain a RESOURCE element, identified with the tag type='results', containing a single TABLE element which contains the results of the query

```
<RESOURCE type="results">
```

Does not break anything
It is only one element..

Erratum to change it from
Requirement to Warning?

- 4.2.1b **REC**: If multiple resources are present it is recommended that the query results be returned in the first resource element

4.2.4a Image Metadata.

- 8,5% of services failed
- 4.2.4a i-viii REQ & WAR : Field arraysize is not *

Erratum to clarify the usage

```
<FIELD ID="naxis" name="naxis" ucd="VOX:Image_Naxis" datatype="int" arraysize="2">
  <DESCRIPTION>
    An array giving the length in pixels of each image axis.
  </DESCRIPTION>
</FIELD>
```

The arraysize="*" is interpreted as regular expression and not as is, therefore some services are putting number on it to declare the dimension when another element is for this ..(use the image naxes for the dimension?)

- Exactly one field must have ucd="VOX:Image_Naxes", with datatype="int", specifying the number of image axes.
- Exactly one field must have ucd="VOX:Image_Naxis", with datatype="int", and arraysize="*", with the array value giving the length in pixels of each image axis.
- Exactly one field must have ucd="VOX:Image_Scale", with datatype="double", and arraysize="*", with the array value giving the scale in degrees per pixel of each image axis.
- Exactly one field must have ucd="VOX:Image_Format", with datatype="char", and arraysize="*", specifying the MIME-type of the object associated with the image ahref, e.g., "image/fits", "text/html", and so forth.

4.2.4b Coordinate System Metadata

- 50% of services failed but all are Warnings

Are using PARAM instead of FIELD

Case 1:

Is used:

```
<PARAM name="crefframe" ucd="VOX:STC_CoordRefFrame" datatype="char" arraysizesize="*" value="FK5">  
  <DESCRIPTION>Coordinate System Reference Frame</DESCRIPTION>  
</PARAM>
```

Instead of:

```
<FIELD ID="CoordRefFrame_109" name="CoordRefFrame" datatype="char" ucd="VOX:STC_CoordRefFrame" arraysizesize="*">  
  <DESCRIPTION>coordinate system reference frame</DESCRIPTION>  
</FIELD>
```

Change our validator?..

Case 2: No coordinates at all (are mandatory? Should they always exists?)

- Exactly one field should have ucd="VOX:STC_CoordRefFrame", with datatype="char", and arraysizesize="*", representing the coordinate system reference frame, selected from "ICRS", "FK5", "FK4", "ECL", "GAL", and "SGAL".
- Exactly one field should have ucd="VOX:WCS_CoordProjection", with datatype="char", and arraysizesize="3", ...
- Exactly one field should have ucd="VOX:WCS_CoordRefPixel", with datatype="double", ...
- Exactly one field should have ucd="VOX:WCS_CoordRefValue", with datatype="double"...
- Exactly one field should have ucd="VOX:WCS_CDMatrix", with datatype="double", and arraysizesize="*" ...

VOTABLE related issues



Issues common to all the SCS, SIA & SSA Services :

MIME type not set.
Erratum to change it from
Requirement to Warning?

1. Mime type (VOTABLE 1.3 chapter 8)

.metd.mime-legal : The MIME type of the zero response has a legal value ('text/xml;content=x-votable')

Chapter 8: "A VOTable document should be introduced by a Multipurpose Internet Mail Extensions media type, or MIME type."

Known issue...
Erratum to support both?

2. Structure of DATA/TABLEDATA (VOTABLE 1.3 chapter 5.1)



```
<DATA>
<TABLEDATA>
  <TR>
    <TD>00</TD>
    <TD>00</TD>
    <TD> 0.00000000  0.00000000</TD>
    <TD> 0.0000000  0.00000000</TD>
    <TD>AIRGLOW</TD>
    <TD>22000</TD>
    <TD>2479.000</TD>
```

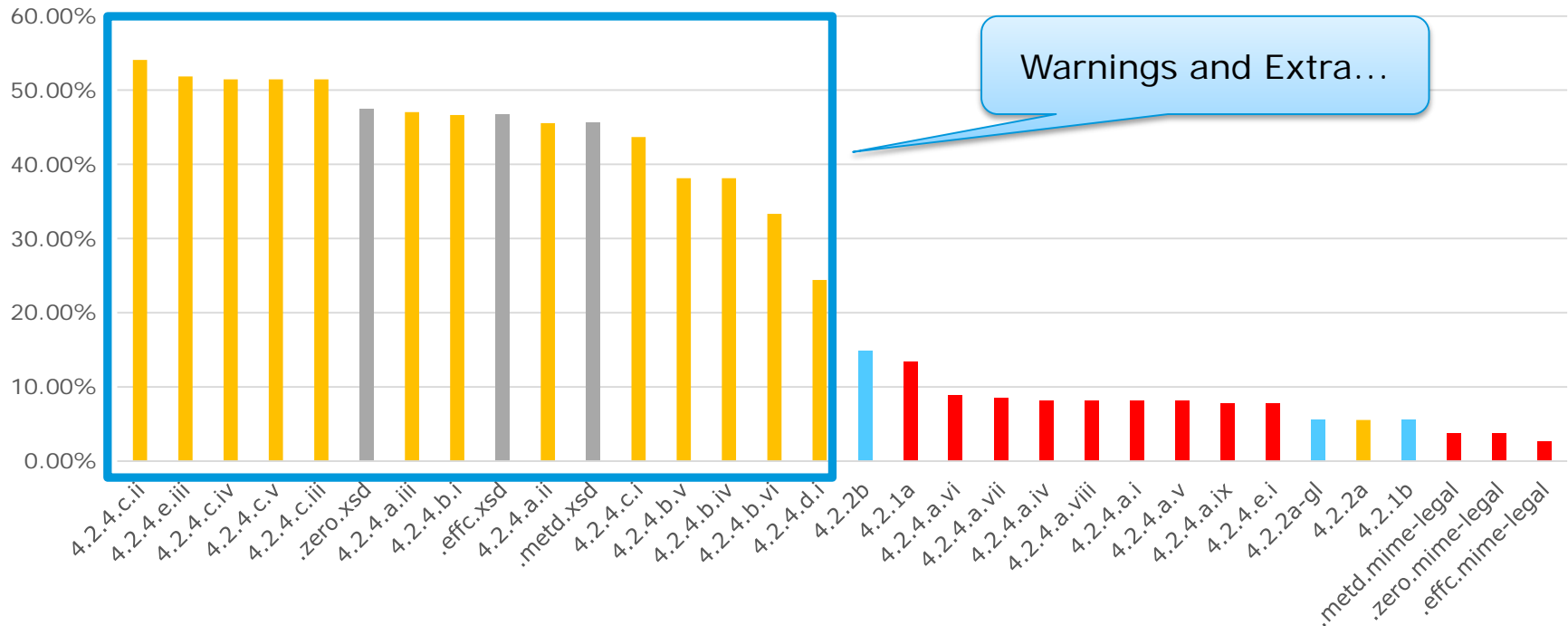


```
<TABLEDATA>
  <DATA>
    <TR>
      <TD>00</TD>
      <TD>00</TD>
      <TD> 0.00000000  0.00000000</TD>
      <TD> 0.0000000  0.00000000</TD>
      <TD>AIRGLOW</TD>
      <TD>22000</TD>
      <TD>2479.000</TD>
```

SIA Services Validation Analysis



Validation criteria failed for SIA Services



| Criterion Type | |
|--|---|
| name | description |
| ■ REQUIREMENT | Tests drawn from 'MUST' statements in the respective standard |
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| ■ RECOMMENDATION | Tests drawn from 'SHOULD' statements in the respective standard |
| ■ EXTRA | Criteria not defined in the IVOA 'Service Validation' wiki |

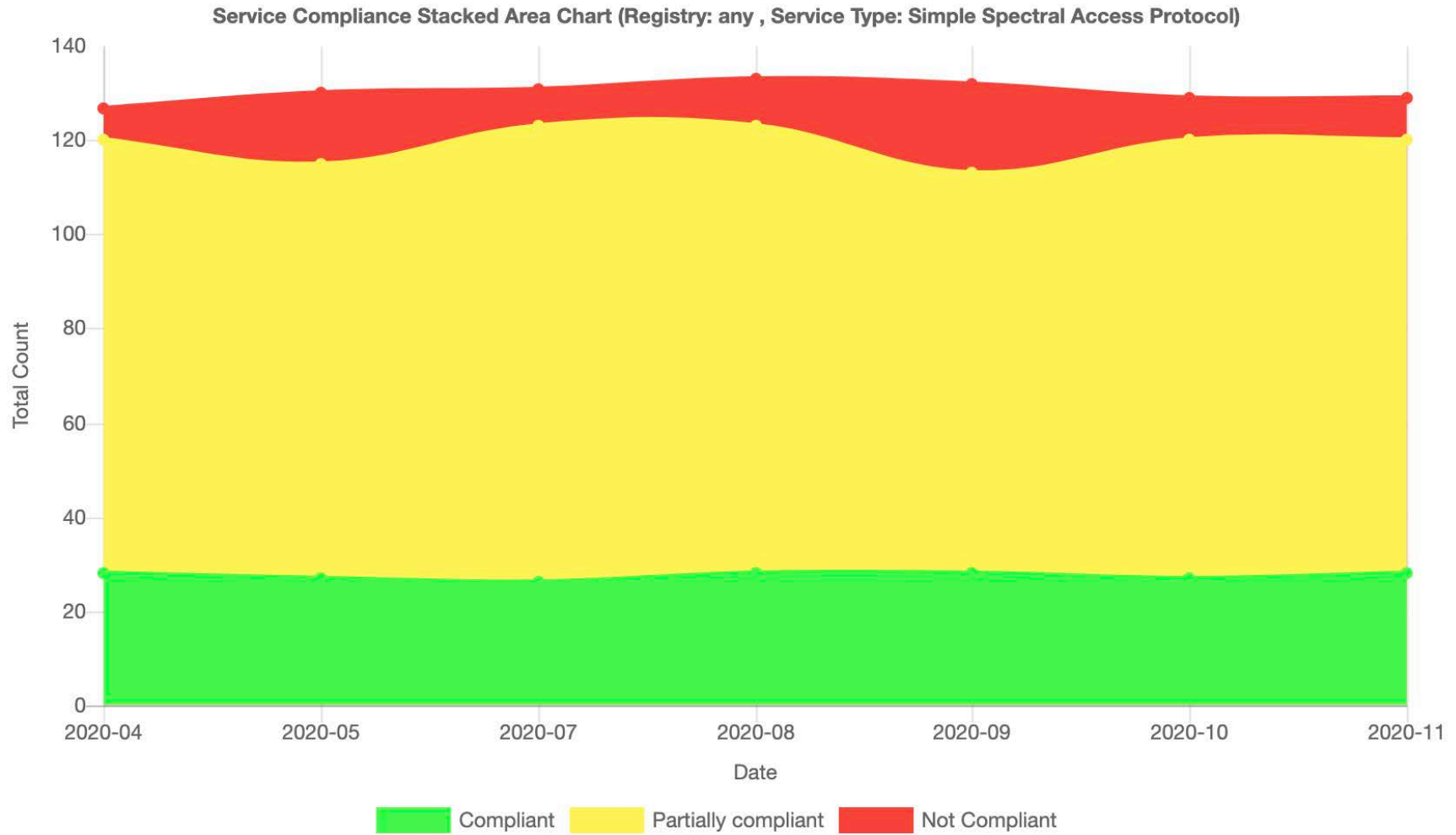
SIA Services Validation Analysis



Potential actions to be taken:

1. **Improve the standard:** erratum for all the 4.2.1.* , 4.2.2.* and 4.2.4.*?
2. **Improve the services:**
 - a) Wrong structure in VOTABLE
 - b) Contact with the low Compliance Category services and report findings.

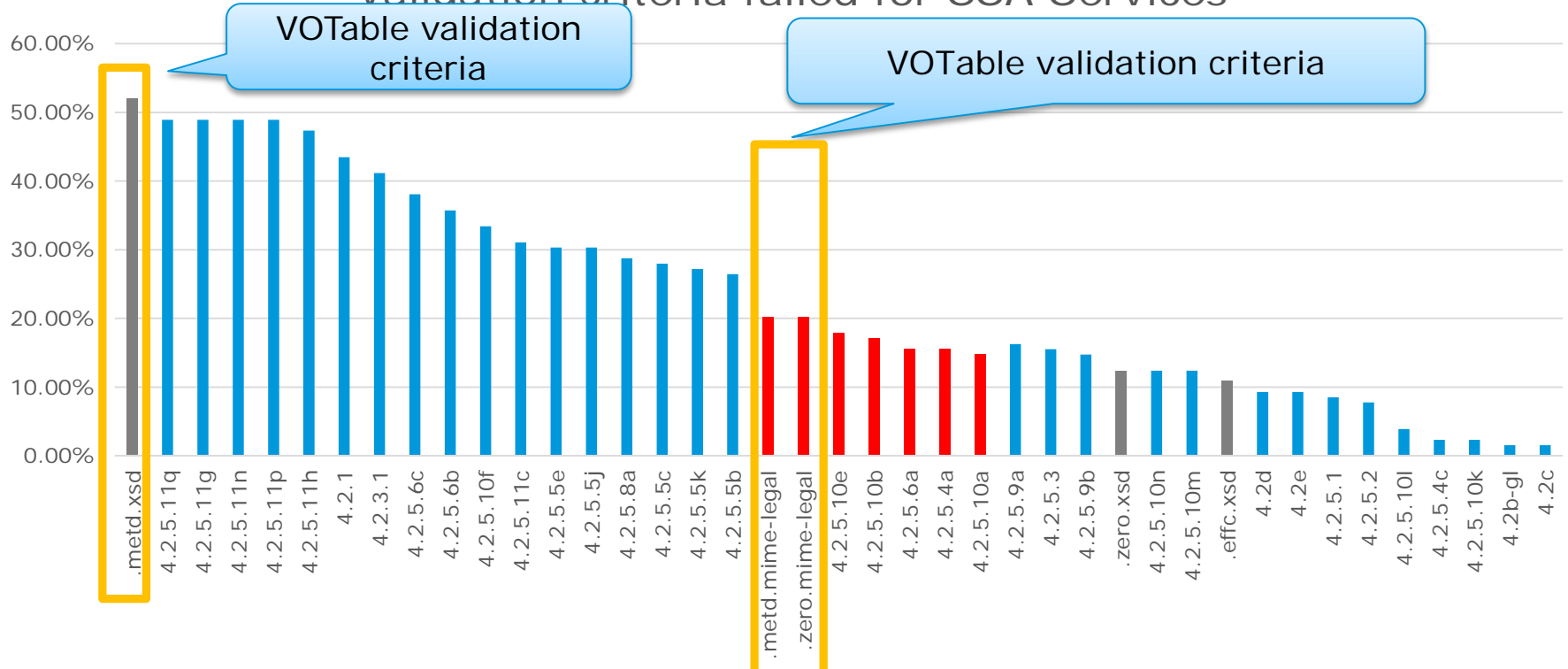
SSA Services Compliance – all registries



SSA Services Validation Analysis



Validation criteria failed for SSA Services



| Criterion Type | |
|--|---|
| name | description |
| ■ REQUIREMENT | Tests drawn from 'MUST' statements in the respective standard |
| ■ WARNING | Tests drawn from strongly encouraged 'SHOULD' statements in the respective standard |
| ■ RECOMMENDATION | Tests drawn from 'SHOULD' statements in the respective standard |
| ■ EXTRA | Criteria not defined in the IVOA 'Service Validation' wiki |

SSA Services Validation Analysis



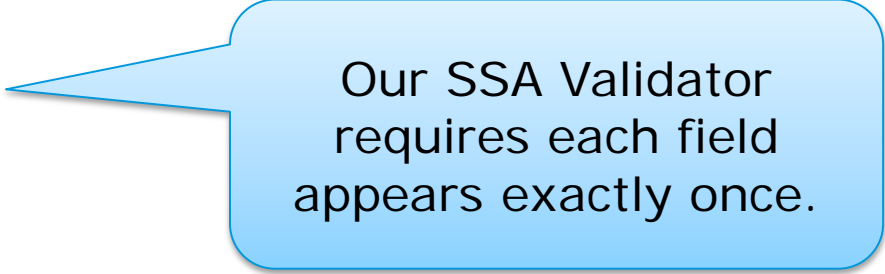
| Code | Type | Description |
|------------------|----------------|---|
| .metd.xsd | EXTRA | The metadata response is XSD-valid XML |
| 4.2.5.11q | RECOMMENDATION | Char.SpatialAxis.Resolution Spatial resolution of data REC |
| 4.2.5.11g | RECOMMENDATION | Char.SpectralAxis.Calibration Type of coord calibration REC |
| 4.2.5.11n | RECOMMENDATION | Char.SpatialAxis.Accuracy.StatError Astrometric statistical error REC |
| 4.2.5.11p | RECOMMENDATION | Char.SpatialAxis.Calibration Type of coord calibration REC |
| 4.2.5.11h | RECOMMENDATION | Char.SpectralAxis.Resolution Spectral resolution FWHM REC |
| 4.2.1 | RECOMMENDATION | UTYPEs of standard fields are required for identification of interface elements and must be given |
| 4.2.3.1 | RECOMMENDATION | Query.Score Degree of match to query params REC |
| 4.2.5.6c | RECOMMENDATION | Curation.PublisherDID Publisher's ID for the dataset REC |
| 4.2.5.6b | RECOMMENDATION | Curation.Reference URL or Bibcode for documentation REC |
| 4.2.5.10f | RECOMMENDATION | Char.TimeAxis.Coverage.Bounds.Extent Total elapsed exposure time REC |
| 4.2.5.11c | RECOMMENDATION | Char.FluxAxis.Calibration Type of flux calibration REC |
| 4.2.5.5e | RECOMMENDATION | DataID.CreatorDID Creator assigned dataset identifier REC |
| 4.2.5.5j | RECOMMENDATION | DataID.DataSource Original source of data REC |
| 4.2.5.8a | RECOMMENDATION | CoordSys.SpaceFrame.Name Spatial coordinate frame REC |
| 4.2.5.5c | RECOMMENDATION | DataID.Collection IVOA Identifier of collection (string) REC |
| 4.2.5.5k | RECOMMENDATION | DataID.CreationType Dataset creation type REC |
| 4.2.5.5b | RECOMMENDATION | DataID.Creator Creator name (string) REC |
| .metd.mime-legal | REQUIREMENT | The MIME type of the metadata response has a legal value ('text/xml;content=x-votable') |
| .zero.mime-legal | REQUIREMENT | The MIME type of the zero response has a legal value ('text/xml;content=x-votable') |
| 4.2.5.10e | REQUIREMENT | Char.TimeAxis.Coverage.Location.Value Midpoint of exposure (MJD) MAN |
| 4.2.5.10b | REQUIREMENT | Char.SpatialAxis.Coverage.Bounds.Extent Aperture angular diameter, deg MAN |
| 4.2.5.6a | REQUIREMENT | Curation.Publisher Publisher MAN |
| 4.2.5.4a | REQUIREMENT | Dataset.DataModel Datamodel name and version MAN |
| 4.2.5.10a | REQUIREMENT | Char.SpatialAxis.Coverage.Location.Value Observed position, e.g., RA DEC MAN |
| 4.2.5.9a | RECOMMENDATION | Char.FluxAxis.Ucd ucd for flux REC |
| 4.2.5.3 | RECOMMENDATION | Access.Size Estimated (not actual) dataset size REC |
| 4.2.5.9b | RECOMMENDATION | Char.SpectralAxis.Ucd ucd for spectral coord REC |

URL: <http://www.ivoa.net/documents/SSA>

1. VOTABLE criteria fails for more than 40%
 - .zero.mime-legal: REQUIREMENT** *“The MIME type of the zero response has a legal value ('text/xml;content=x-votable')”*
 - .metd.mime-legal: REQUIREMENT** *“The MIME type of the metadata response has a legal value ('text/xml;content=x-votable')”*
2. Many REC (4.2.5.x) failures. They seem to fail for 40% of the services.

The reason is that the following fields are used more than once:

- Access.Reference
- Access.Format
- Access.Size
- Dataset.DataModel
- Dataset.Length
- DataID.Title
- DataID.Creator
- DataID.Collection
- DataID.CreatorDID
- DataID.DataSource
- ...

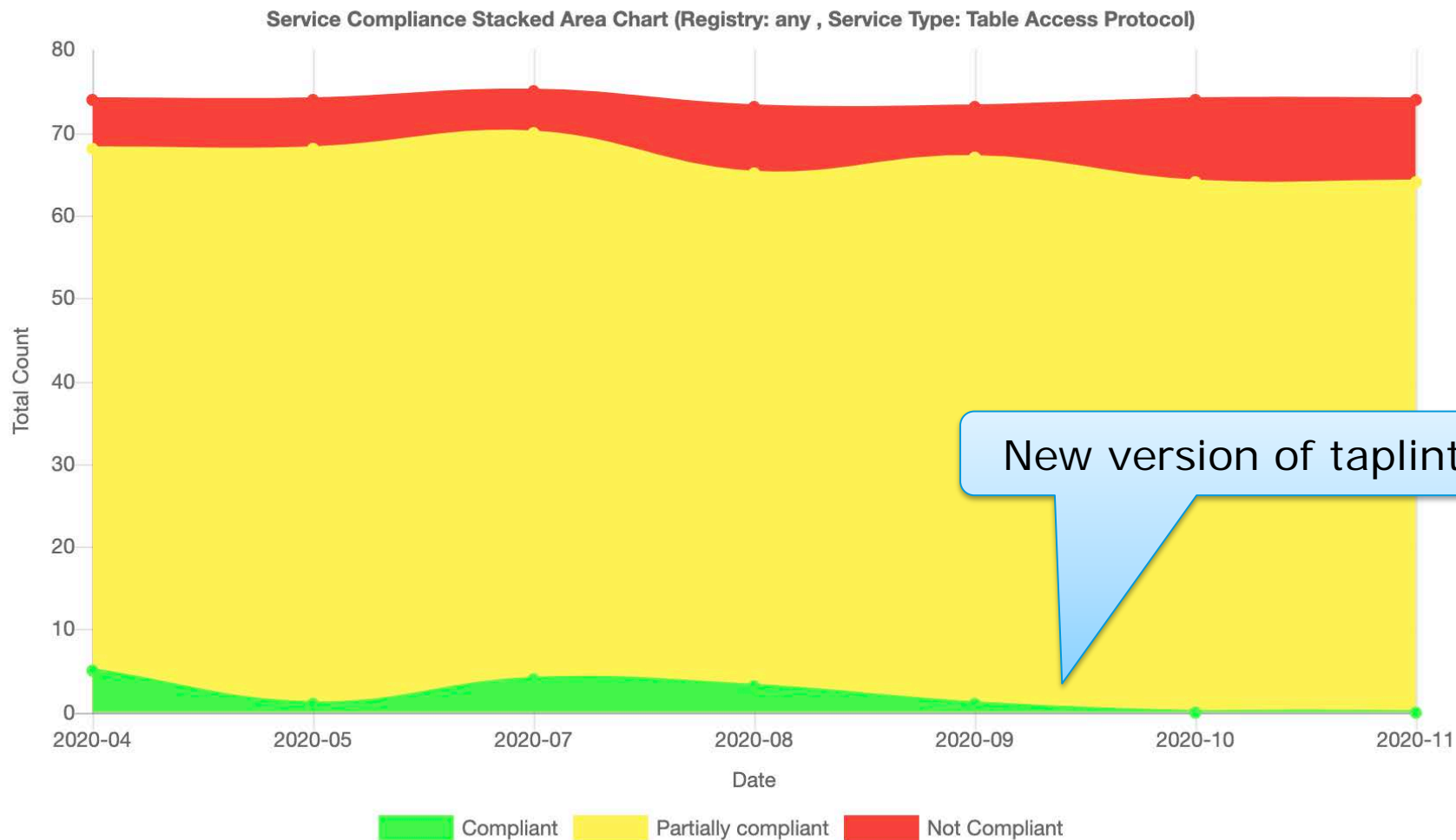


Our SSA Validator requires each field appears exactly once.

Potential actions to be taken:

1. **Update the Standard (errata?):** There are many REQ failures related to VOTABLE and REC (4.2.5.x) failures related to SSA . They seem to fail for 40% of the services. Suggest an erratum?
2. **Improve the services:**
 - a) Wrong structure in VOTABLE.
 - b) Contact with the low Compliance Category services and report findings.

TAP Services Compliance – all registries

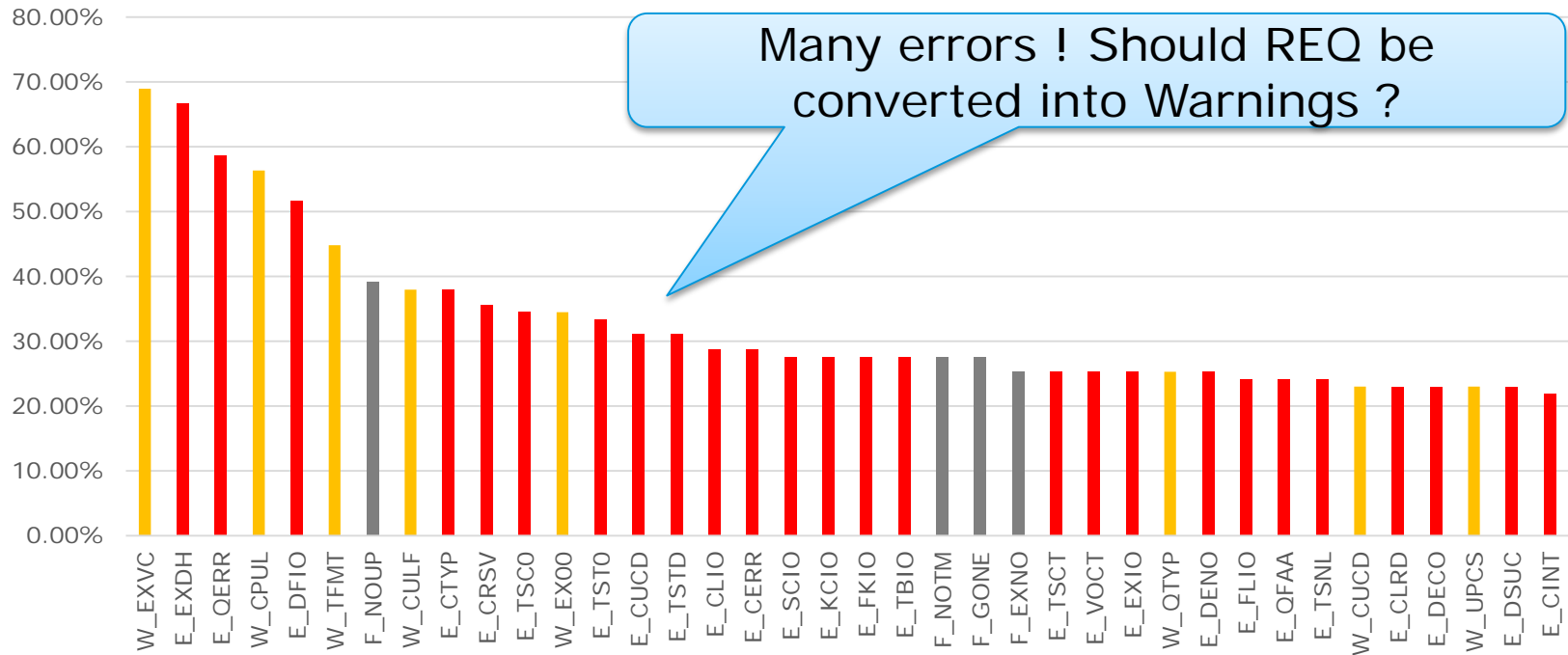


New version of taplint?

TAP Services Validation Analysis



Validation criteria failed for TAP service



Many errors ! Should REQ be converted into Warnings ?

| Criterion Type | |
|--|---|
| name | description |
| ■ REQUIREMENT | Tests drawn from 'MUST' statements in the respective standard |
| ■ WARNING | Tests drawn from strongly encouraged 'SHOULD' statements in the respective standard |
| ■ RECOMMENDATION | Tests drawn from 'SHOULD' statements in the respective standard |
| ■ EXTRA | Criteria not defined in the IVOA 'Service Validation' wiki |

TAP Services Validation Analysis



Top ERRORS/ REQUIREMENTS of TAP Validator

| | |
|--------|--|
| E_EXDH | Examples declaration/presence mismatch |
| E_QERR | Query failed |
| E_DFIO | Duff query failed |
| E_CTYP | Declared/result type mismatch |
| E_CRSV | Column name ADQL reserved word |
| E_TSCO | Missing TAP_SCHEMA column |
| E_TSTO | Missing TAP_SCHEMA table |
| E_CUCD | UCD mismatch |
| E_TSTD | TAP_SCHEMA column not flagged Std |
| E_CLIO | Error reading TAP_SCHEMA.columns table |
| E_CERR | Error reading TAP_SCHEMA.columns data |
| E_SCIO | Error reading TAP_SCHEMA.schemas table |

Potential actions to be taken:

1. **Update the Standard:** need to check if all warnings always failing are covered in TAP 1.1 PR
2. **Improve the validator:** The next version (after v3.3) will contain many updates.
3. **Improve the services:**
 - a. Need to do more fine grained analysis of many errors returned
 - b. Contact TAP service providers for them to improve their service

Conclusions



1. Need to discuss with DAL WG to determine if some of the DAL standards should be corrected with some Errata
2. Need to start contacting publishers of VOResources for them to improve their service compliancy

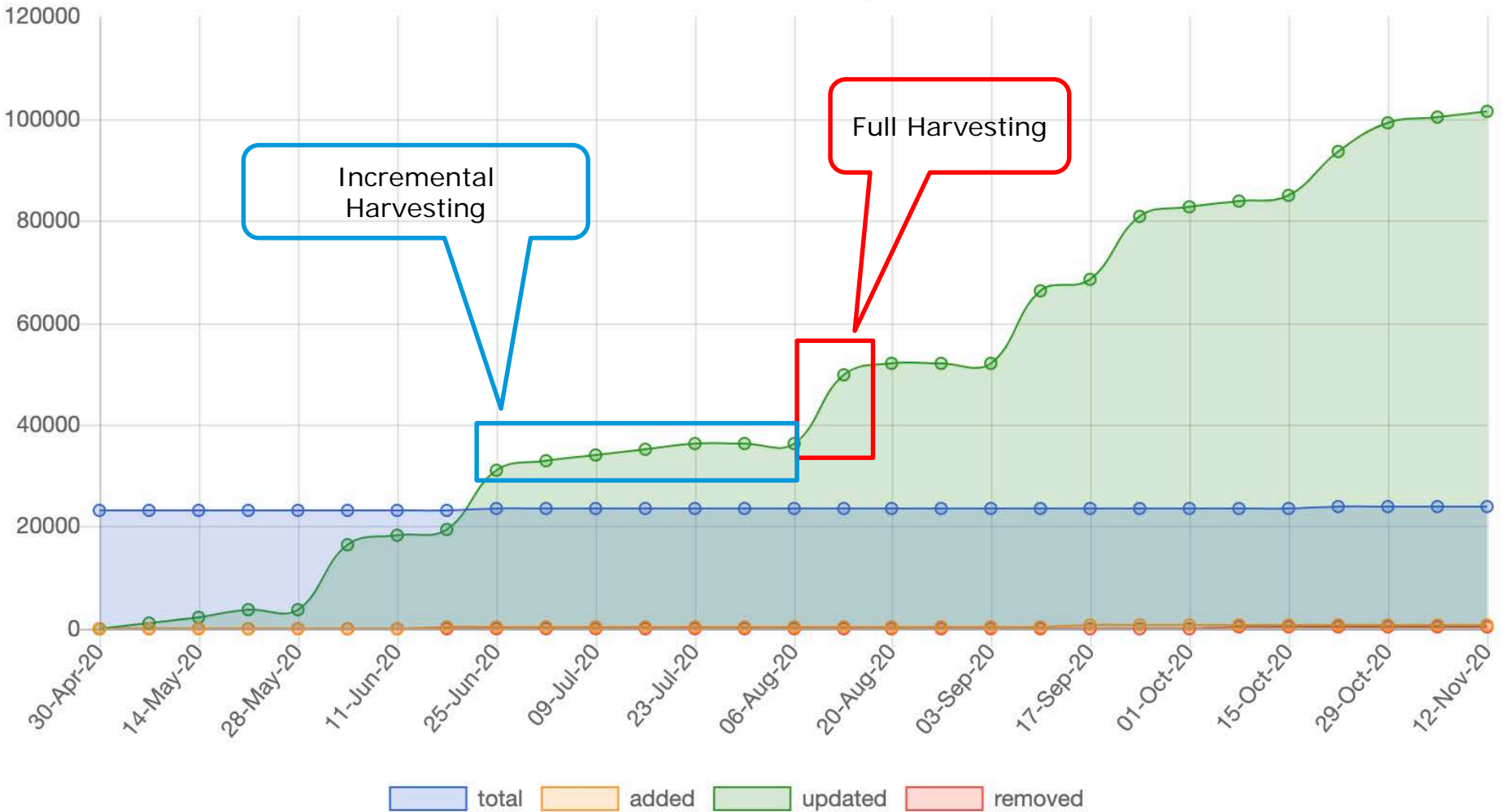
THANK YOU!

BACKUP SLIDES



VOResources evolution

Resource Population For Registries



Many updates the last months...