Comparision of Simple Image Access Protocol Validation Tests

# VO-Paris Simple Image Access version 1.0 Validator Tests

**[G2g]: VOTable XML validation** VOTable must be valid against the **VOTable 1.0** schema

## Musts/Errors for query FORMAT=METADATA

**[SI1 6.1.2] 6.1.2** There must be one RESOURCE with 3 PARAMs with name = ‘INPUT:POS’, ‘INPUT:SIZE’, ‘INPUT:FORMAT’.

## Must/Errors for a normal query

**[SI1 6.1.1] 6.1.1** RESOURCE/ with type=’meta’ must only appear in case of FORMAT=METADATA

**[SI1 4.2.4.1a-c] 4.2.4.1** The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_Title' and datatype='char' and arraysize='\*'

**[SI1 4.2.4.4.2a-b]** Exactly one FIELD or PARAM must have ucd=’POS\_EQ\_RA\_MAIN’ and datatype=’double’

**[SI1 4.2.4.5a-b]** Exactly one FIELD or PARAM must have ucd=’POS\_EQ\_DEC\_MAIN’ and datatype=’double’

**[SI1 4.2.4.5a-b] 4.2.4.6** Exactly one FIELD or PARAM must have ucd=’VOX:Image\_Naxes’ and datatype=’int’

**[SI1 4.2.4.7a-b] 4.2.4.7** Exactly one FIELD or PARAM must have ucd=’VOX:Image\_Naxis’ and datatype=’int’

**[SI1 4.2.4.8a-c] 4.2.4.8** Exactly one FIELD or PARAM must have ucd=’VOX:Image\_Scale’ and datatype=’double’ and arraysize contains ‘\*’ or a numeric value.

**[SI1 4.2.4.9a-c] 4.2.4.9** Exactly one FIELD or PARAM must have ucd=’VOX:Image\_Format’ and datatype=’char’ and arraysize=’\*’

**[SI1 4.2.4.22a-c] 4.2.4.22** Exactly one FIELD or PARAM should contain ucd = ‘VOX:Image\_AccessReference’ and datatype=’char’ and arraysize=’\*’

# NCSA/HEASARC

## Musts/Errors

**[SI1 4.1] 4.1** Legal query produced an ERROR result.

**[SI1 4.2.1a] 4.2.1a** VOTable must contain exactly one RESOURCE with type='results'.

**[SI1 4.2.1b] 4.2.1b** There must be exactly one TABLE in the RESOURCE containing the results.

**[SI1 4.2.4.1a] 4.2.4a/a** The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_Title'.

**[SI1 4.2.4.1b] 4.2.4a/b** The VOX:Image\_Title column must have datatype='char'.

**[SI1 4.2.4.1c] 4.2.4a/c** The VOX:Image\_Title column must have arraysize='\*'

**[SI1 4.2.4.2b] 4.2.4b/b** The INST\_ID column must have datatype='char'.

**[SI1 4.2.4.2c] 4.2.4b/c** The INST\_ID column must have arraysize='\*'

**[SI1 4.2.4.4a] 4.2.4d/a** The TABLE must contain exactly one FIELD or PARAM with ucd='POS\_EQ\_RA\_MAIN'.

**[SI1 4.2.4.4b] 4.2.4d/b** The POS\_EQ\_RA\_MAIN column must have datatype='double'.

**[SI1 4.2.4.4c] 4.2.4d/c** The POS\_EQ\_RA\_MAIN column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.2.4.5a] 4.2.4e/a** The TABLE must contain exactly one FIELD or PARAM with ucd='POS\_EQ\_DEC\_MAIN'.

**[SI1 4.2.4.5b] 4.2.4e/b** The POS\_EQ\_DEC\_MAIN column must have datatype='double'.

**[SI1 4.2.4.5c] 4.2.4e/c** The POS\_EQ\_DEC\_MAIN column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.2.4.6a] 4.2.4f/a** The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_Naxes'.

**[SI1 4.2.4.6b] 4.2.4f/b T**he VOX:Image\_Naxes column must have datatype='int'.

**[SI1 4.2.4.6c] 4.2.4f/c** The VOX:Image\_Naxes column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.2.4.7a] 4.2.4g/a** The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_Naxis'.

**[SI1 4.2.4.7b] 4.2.4g/b** The VOX:Image\_Naxis column must have datatype='int'.

**[SI1 4.2.4.7c] 4.2.4g/c** The VOX:Image\_Naxis column must have arraysize='\*'

**[SI1 4.2.4.8a] 4.2.4h/**a The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_Scale'.

**[SI1 4.2.4.8b] 4.2.4h/b** The VOX:Image\_Scale column must have datatype='double'.

**[SI1 4.2.4.8c] 4.2.4h/c** The VOX:Image\_Scale column must have arraysize='\*'

**[SI1 4.2.4.9a] 4.2.4i/a** The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_Format'.

**[SI1 4.2.4.9b] 4.2.4i/b** The VOX:Image\_Format column must have datatype='char'.

**[SI1 4.2.4.9c] 4.2.4i/c** The VOX:Image\_Format column must have arraysize='\*'

**[SI1 4.2.4.10b] 4.2.4j/b** The VOX:STC\_CoordRefFrame column must have datatype='char'.

**[SI1 4.2.4.10c] 4.2.4j/c** The VOX:STC\_CoordRefFrame column must have arraysize='\*'

**[SI1 4.2.4.13b] 4.2.4m/b** The VOX:WCS\_CoordRefPixel column must have datatype='double'.

**[SI1 4.2.4.13c] 4.2.4m/c** The VOX:WCS\_CoordRefPixel column must have arraysize='\*'

**[SI1 4.2.4.14b] 4.2.4n/b** The VOX:WCS\_CoordRefValue column must have datatype='double'.

**[SI1 4.2.4.14c] 4.2.4n/c** The VOX:WCS\_CoordRefValue column must have arraysize='\*'

**[SI1 4.2.4.15b] 4.2.4o/b** The VOX:WCS\_CDMatrix column must have datatype='double'.

**[SI1 4.2.4.15c] 4.2.4o/c** The VOX:WCS\_CDMatrix column must have arraysize='\*'

**[SI1 4.2.4.16b] 4.2.4p/b** The VOX:BandPass\_ID column must have datatype='char'.

**[SI1 4.2.4.16c] 4.2.4p/c** The VOX:BandPass\_ID column must have arraysize='\*'

**[SI1 4.2.4.17b] 4.2.4q/b** The VOX:BandPass\_Unit column must have datatype='char'.

**[SI1 4.2.4.17c] 4.2.4q/c** The VOX:BandPass\_Unit column must have arraysize='\*'

**[SI1 4.2.4.18b] 4.2.4r/b** The VOX:BandPass\_RefValue column must have datatype='double'.

**[SI1 4.2.4.18c] 4.2.4r/c** The VOX:BandPass\_RefValue column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.2.4.19c] 4.2.4s/b** The VOX:BandPass\_HiLimit column must have datatype='double'.

**[SI1 4.2.4.19c] 4.2.4s/c** The VOX:BandPass\_HiLimit column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.2.4.20c] 4.2.4t/b** The VOX:BandPass\_LoLimit column must have datatype='double'.

**[SI1 4.2.4.20c] 4.2.4t/c** The VOX:BandPass\_LoLimit column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.2.4.21b] 4.2.4u/b** The VOX:Image\_PixFlags column must have datatype='char'.

**[SI1 4.2.4.21c] 4.2.4u/c** The VOX:Image\_PixFlags column must have arraysize='\*'

**[SI1 4.2.4.22a] 4.2.4v/a** The TABLE must contain exactly one FIELD or PARAM with ucd='VOX:Image\_AccessReference'.

**[SI1 4.2.4.22b] 4.2.4v/b** The VOX:Image\_AccessReference column must have datatype='char'.

**[SI1 4.2.4.22c] 4.2.4v/c** The VOX:Image\_AccessReference column must have arraysize='\*'

**[SI1 4.2.4.24b] 4.2.4x/b** The VOX:Image\_fileSize column must have datatype='int'.

**[SI1 4.2.4.24c] 4.2.4x/c** The VOX:Image\_FileSize column must be defined as a scalar--i.e. arraysize="1", arraysize="", or not provided (preferred).

**[SI1 4.3.1a] 4.3a** On error, RESOURCE must include one INFO element with name="QUERY\_STATUS".

**[SI1 4.3.1b] 4.3b** Errors must be reported using INFO element with name=QUERY\_STATUS and value='ERROR'.

**[SI1 4.3] 4.3d** Unrecognized QUERY\_STATUS: OK; must be either OK, ERROR, or OVERFLOW.

**[SI1 6.1a] 6.1a** Metadata query produced an ERROR result.

### Errors thrown by the HEASARC testing framework:

Could not find a tester class for this service (indicates an error in HEASARC metadata regarding the service)

Could not find proper handler (indicates an error in HEASARC metadata regarding the services)

**[G1]** Apparent communication error produced an exception inside the validator (indicates and error communicating with either the validator service or the underlying cone search capability)

**[SI1 4.2.4.22.d]** Could not find reference URL element [Unable to find data in the reference URL]

**[SI1 4.2.4.9d]** Could not find data format element [Unable to get the expected format for the rferenced data]

**[SI1 4.2.4.22.e]** Could not find image URL [The referenced image cannot be found or has an improper format]

Unknown error [Unhandled exception]

# ESA

**[G1]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.on', 'REQUIREMENT', 1000, 'The service is ON');

**[G2a (Z)]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.zero.xml', 'REQUIREMENT', 100, 'The zero response is well-formed XML');

**[G2c (Z)]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.zero.mime-legal', 'REQUIREMENT', 100, 'The MIME type of the zero response has a legal value (''text/xml;content=x-votable'')');

**[G2a (M)]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.metd.xml', 'REQUIREMENT', 100, 'The metadata response is well-formed XML');

**[G2c (M)]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.metd.mime-legal', 'REQUIREMENT', 100, 'The MIME type of the metadata response has a legal value (''text/xml;content=x-votable'')');

**[G2a (N)]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.effc.xml', 'REQUIREMENT', 100, 'The effective response is well-formed XML');

**[G2c (N)]** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '.effc.mime-legal', 'REQUIREMENT', 100, 'The MIME type of the effective response has a legal value (''text/xml;content=x-votable'')');

**[SI1 4.2.1a-b] 4.2.1a** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.1a', 'REQUIREMENT', 100, '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');

**[SI1 4.2.4.1a-c] 4.2.4.a.i** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.i', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''VOX:Image\_Title'', with datatype=''char'', and arraysize=''\*''');

**[SI1 4.2.4.4a-b] 4.2.4.a.iv** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.iv', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''POS\_EQ\_RA\_MAIN'', with datatype=''double''');

**[SI1 4.2.4.5a-b] 4.2.4.a.v** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.v', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''POS\_EQ\_DEC\_MAIN'', with datatype=''double''');

**[SI1 4.2.4.6a-b] 4.2.4.a.vi** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.vi', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''VOX:Image\_Naxes'', with datatype=''int''');

**[SI1 4.2.4.7a-c] 4.2.4.a.vii** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.vii', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''VOX:Image\_Naxis'', with datatype=''int'', and arraysize=''\*''');

**[SI1 4.2.4.8a-c] 4.2.4.a.viii** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.viii', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''VOX:Image\_Scale'', with datatype=''double'', and arraysize=''\*''');

**[SI1 4.2.4.9a-c] 4.2.4.a.ix** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.a.ix', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''VOX:Image\_Format'', with datatype=''char'', and arraysize=''\*''');

**[SI1 4.2.4.21a-c] 4.2.4.e.i** INSERT INTO validation\_criterion(cap\_type, code, criterion\_type, weight, description) VALUES('sia:SimpleImageAccess', '4.2.4.e.i', 'REQUIREMENT', 100, 'Exactly one field must have ucd=''VOX:Image\_AccessReference'', with datatype=''char'' and arraysize=''\*''');

# Direct comparison of tests.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Description** | **VOParis** | **NCSA/HEASARC** | **ESA** |
|  |  |  |  |  |
| G1 | Able to access resource | x | x | X |
| G2a | Resources is valid XML | X | x | X |
| G2c | Resource has valid mime type |  |  | X |
| SI1 4.1 | No error seen in legal query |  | 4.1 |  |
| SI1 4.2.1a | Must have RESOURCE with name ‘results’ |  | 4.2.1a | 4.2.1a |
| SI1 4.2.1b | RESOURCE with name ‘results’ must have single TABLE |  | 4.2.1b |
| SI1 4.2.4.1a | Must have unique VOX:IMAGE\_TITLE column | 4.2.4.1 | 4.2.4a/a | 4.2.4.a.i |
| SI1 4.2.4.1b | Image title column must be type char | 4.2.4a/b |
| SI1 4.2.4.1c | Image title column must have arraysize \* | 4.2.4a/c |
| SI1 4.2.4.2b | If INST\_ID column found must have type char |  | 4.2.4b/b |  |
| SI1 4.2.4.2c | If INST\_ID column found must have arraysize \* |  | 4.2.4b/c |  |
| SI1 4.2.4.4a | Must have POS\_EQ\_RA\_MAIN column | 4.2.4.4 | 4.2.4d/a | 4.2.4.a.iv |
| SI1 4.2.4.4b | RA column must be double | 4.2.4d/b |
| SI1 4.2.4.4c | RA column must be effective scalar |  | 4.2.4d/c |  |
| SI1 4.2.4.5a | Must have POS\_EQ\_DEC\_MAIN column | 4.2.4.5 | 4.2.4e/a | 4.2.4.a.v |
| SI1 4.2.4.5b | Dec column must be double | 4.2.4e/b |
| SI1 4.2.4.5c | Dec column must be effective scalar |  | 4.2.4e/c |  |
| SI1 4.2.4.6a | Must have VOX:NAXES column |  | 4.2.4f/a | 4.2.4.a.vi |
| SI1 4.2.4.6b | NAXES column must be type int |  | 4.2.4f/b |
| SI1 4.2.4.6c | NAXES column must be effective scalar |  | 4.2.4f/c |  |
| SI1 4.2.4.7a | Must have VOX:NAXIS column | 4.2.4.7 | 4.2.4g/a | 4.2.4.a.vii |
| SI1 4.2.4.7b | NAXIS must have type int | 4.2.4g/b |
| SI1 4.2.4.7c | NAXIS must have arraysize \* | 4.2.4g/c |
| SI1 4.2.4.8a | Must have VOX:IMAGE\_SCALE column | 4.2.4.8 | 4.2.4h/a | 4.2.4.a.viii |
| SI1 4.2.4.8b | IMAGE\_SCALE must be double | 4.2.4h/b |
| SI1 4.2.4.8c | IMAGE\_SCALE must have arraysize \* | 4.2.4h/c |
| SI1 4.2.4.9a | Must have VOX:IMAGE\_FORMAT column | 4.2.4.9 | 4.2.4i/a | 4.2.4.a.ix |
| SI1 4.2.4.9b | IMAGE\_FORMAT must be char | 4.2.4i/b |
| SI1 4.2.4.9c | IMAGE\_FORMAT must have arraysize \* | 4.2.4i/c |
| SI1 4.2.4.9d | Image format must be non-null |  | x |  |
| SI1 4.2.4.10b | If VOX:STC\_REFERENCE\_FRAME column type must be char |  | 4.2.4j/b |  |
| SI1 4.2.4.10c | … arraysize must be \* |  | 4.2.4j/c |  |
| SI1 4.2.4.13b | If VOX:WCS\_CoordRefPixel type must be double |  | 4.2.4m/b |  |
| SI1 4.2.4.13c | … arraysize must be \* |  | 4.2.4m/c |  |
| SI1 4.2.4.14b | If VOX:WCS\_CoordRefValue type must be double |  | 4.2.4n/b |  |
| SI1 4.2.4.14c | … arraysize must be \* |  | 4.2.4n/c |  |
| SI1 4.2.4.15b | If VOX:WCS\_CDMatrix type must be double |  | 4.2.4o/b |  |
| SI1 4.2.4.15c | .. arraysize must be \* |  | 4.2.4o/c |  |
| SI1 4.2.4.16b | If VOX:BANDPASS\_ID type must be char |  | 4.2.4p/b |  |
| SI1 4.2.4.16c | … arrasize must be \* |  | 4.2.4p/c |  |
| SI1 4.2.4.17b | If VOX:BANDPASS\_UNIT type must be char |  | 4.2.4q/b |  |
| SI1 4.2.4.17c | … arraysize must be \* |  | 4.2.4q/c |  |
| SI1 4.2.4.18b | If VOX:BANDPASS\_REFVALUE type myst be double. |  | 4.2.4r/b |  |
| SI1 4.2.4.18c | … must be effective scalar |  | 4.2.4r/c |  |
| SI1 4.2.4.19b | If VOX:BANDPASS\_HILIMIT type must be double |  | 4.2.4s/b |  |
| SI1 4.2.4.19c | … must be effective scalar |  | 4.2.4s/c |  |
| SI1 4.2.4.20b | If VOX:BANDPASS\_LOLIMIT type must be double |  | 4.2.4t/b |  |
| SI1 4.2.4.20c | … must be effective scalar |  | 4.2.4t/c |  |
| SI1 4.2.4.21b | If PIXFLAGS type must be char |  | 4.2.4u/b |  |
| SI1 4.2.4.21c | … arraysize must be \* |  | 4.2.4u/c |  |
|  |  |  |  |  |
| SI1 4.2.4.22a | Must have VOX:IMAGE\_ACCESSREFERENCE column | 4.2.4.22 | 4.2.4v/a | 4.2.4.e.i |
| SI1 4.2.4.22b | … must be type char | 4.2.4v/b |
| SI1 4.2.4.22c | … must have arraysize \* | 4.2.4v/c |
| SI1 4.2.4.22d | … must be non-null |  | x |  |
| SI1 4.2.4.22e | … must be able to retrieve data from URL matching format |  | x |  |
| SI1 4.2.4.24b | If VOX:FILE\_SIZE type must be int |  | 4.2.4x/b |  |
| SI1 4.2.4.24c | … must be effective scalar |  | 4.2.4x/c |  |
| SI1 6.1.1 | Meta RESOURCE only in meta query | 6.1.1 |  |  |
| SI1 6.1.2 | Meta results include query params | 6.1.2 |  |  |