

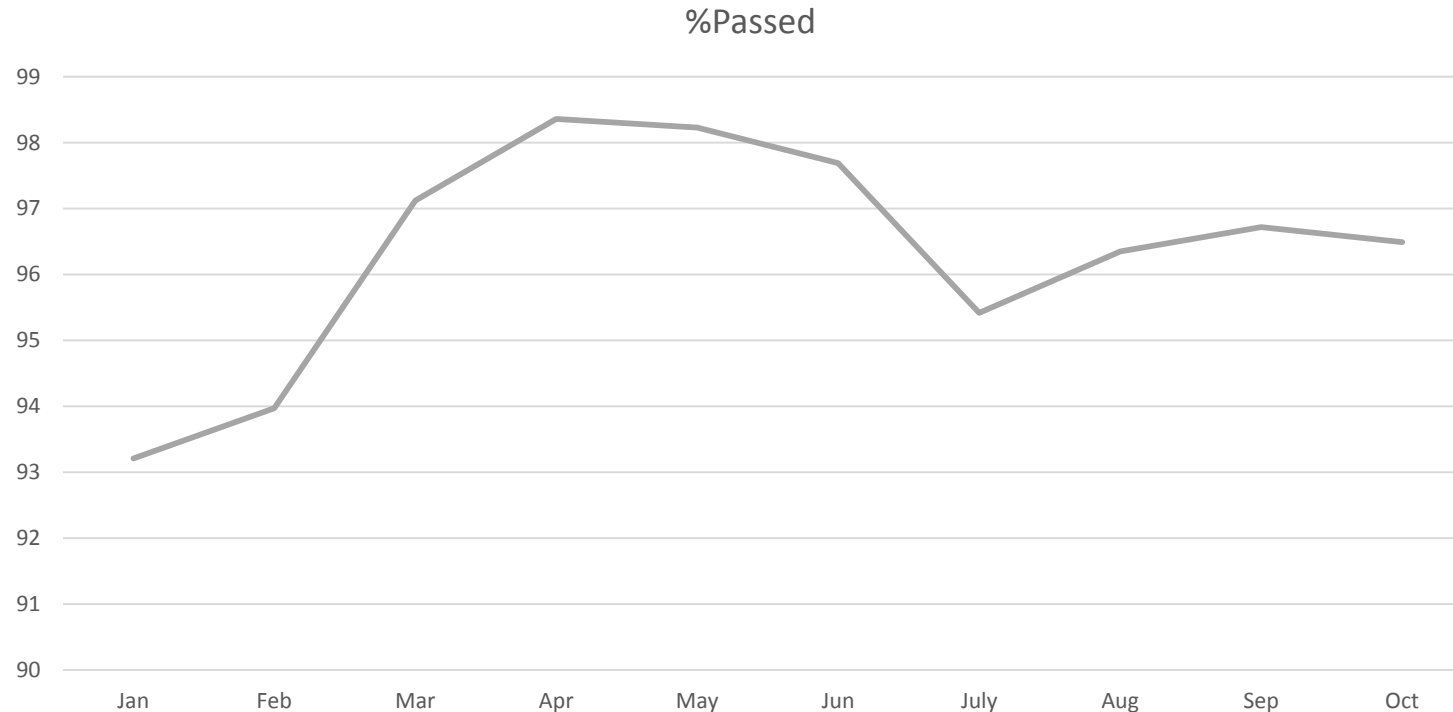
NAVO Monitoring and Validation Results

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Service Reliability: 2015



Average fraction passing uptime tests in NAVO monitoring.
NAVO tests all sites each hour.

Very substantial overweighting of small sites (one test/site/svc.type)
Look at weighting by number of services provided/requests made/...?

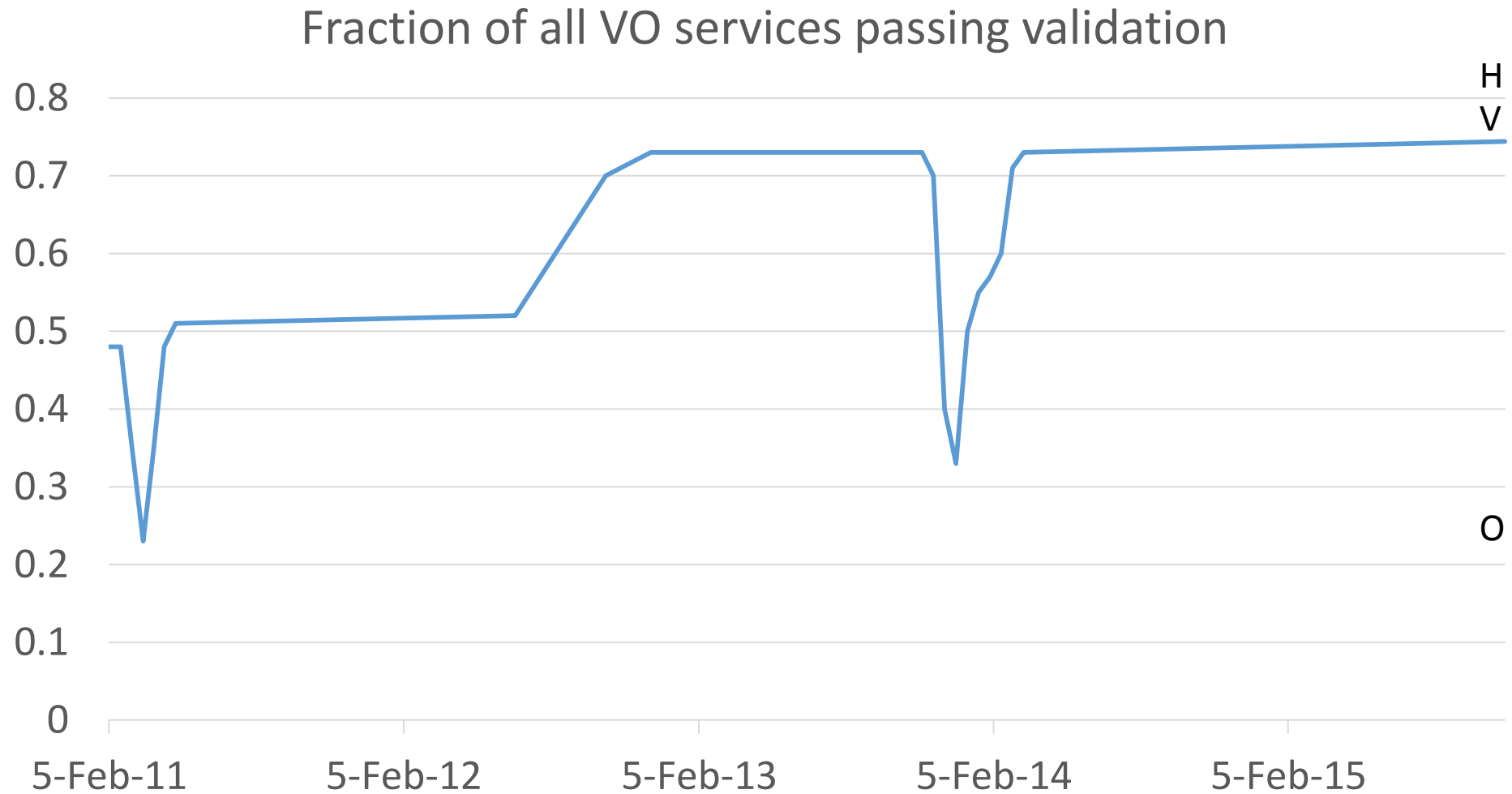
Uptime Statistics for June 30 – October24, 2015

Site	% Passed tests	% All Up	Site	% Passed tests	% All Up	Site	% Passed tests	%All Up
3CR Snapshots	98.3	98.3	Harvard ADS *	97.1	97.1	Obs Haute Provence	98.5	98.5
ASDC	99.5	99.5	Harvard CXC *	99.7	99.7	Obs Lyon	99.7	99.6
ASU	99.9	99.9	Helio VO	98.9	98.9	ROE Astrogrid	94.4	84.1
Arecibo-Cornell	48.4	48.4	Helio VO Mirror	99.8	99.8	SDSS	89.8	76.6
Astro-Wise	86.4	59.9	IACVO	100	100	STECF	99.8	99.7
Astronet	90.3	90.2	INAF	98.0	95.8	STScI Registry	99.8	99.8
BSDC	78.3	78.3	IRSA *	99.5	99.3	SVO	99.9	99.9
CADC	95.5	88.2	ISON	95.2	95.2	SkyBot	88.5	88.5
CDPP	97.6	97.6	IVOA	99.9	99.9	StarDB	98.2	98.2
CDS	98.9	98.2	IVOA RofR	96.4	96.4	Swinburne	100	100
CRTS	98.6	98.6	JVO	99.5	99.1	TBL Narval	98.0	98.0
CSIRO	99.1	97.5	LAM	0	0	USNO	89.0	89.0
Castor	98.0	98.0	MAGIC	90.8	90.8	VAO Closeout Repo	100	100
China VO	78.2	70.1	MAST *	99.6	99.3	VO Paris	99.5	99.2
ESA VO	99.3	99.1	NAO	97.1	97.1	XCAT	98.4	98.3
ESO	99.7	99.6	NCI	97.8	95.8			
GAVO	99.2	99.3	NCSA	96.4	96.4			
GCP	98.9	98.9	NEA	99.7	99.7			
GRAAL-VO	99.3	99.3	NED *	99.6	99.2			
German VO	98.6	98.3	NOAO	98.7	98.7			
HEASARC *	97.3	88.8	NOVA	94.2	94.1			
HESIOD	94.2	93.1	OVGSO	98.0	98.0			

Site issues

- Astro-wise –intermittent SIAP service issues.
- Arecibo-Cornell – cone service being shut down. Hard to get rid of registry entry.
- BSDC - no specific issues. Internet?
- China VO-intermittent issue with the CSTAR Cone service.
- HESIOD - Issues with the HESIOD SIAP service which was down in August
- LAM - Obsolete entry
- SDSS – Persistent redirection problem for pointing to ‘latest’ SDSS service, but individual releases were OK.
- SkyBot - Occasional issues seen over the weekend
- USNO -The Nomad Cone service test was failing intermittently.

Validation summary ?



Take away

- Validation progress has been slow
- Need to disaggregate statistics

NAVO/HEASARC now runs NCSA validation software locally but no current support for user initiated validation through validation web site.

Site	Total	Pass #	Pass %	Site	Total	Pass #	Pass %	Site	Total	Pass #	Pass %
3CRSnapshots	1	1	100	German VO	5	0	0	NED	3	0	0
ANU	7	6	85.7	HEASARC	784	674	85.9	NOAO	4	0	0
ASDC	1	0	0	HESIOD	3	0	0	NOVA	2	0	0
ASU	2	2	100	Harvard ADS	1	1	100	OV-GSO	1	0	0
Arecibo-Cornell	2	0	0	Harvard CXC	7	0	0	Obs Haute Provence	1	0	0
Astro-Wise	4	0	0	Helio Registry	2	0	0				
Astronet	27	0	0	Helio Registry Mirror	3	0	0	Obs Paris	0	0	0
BSDC VO	4	2	50	IA2 Inaf	36	25	69.4	ROE Astrogrid	241	97	40.2
CADC	5	0	0	IACVO	3	0	0	SDSS	24	0	0
CDPP	1	0	0	IAP VOPDC	1	1	100	STECF	4	0	0
CDS	1	0	0	IPAC	358	7	1.95	STScI Opo	1	0	0
CDS SIMBAD	2	1	50	ISON	1	0	0	STScI Registry	37	24	64.8
CDS VizieR	10431	8177	78.3	IVOA NET	1	0	0	SVO CAB	35	3	8.57
CESAM	2	0	0	JVO	25	2	8	SVO IFCA	1	0	0
CSIRO	4	0	0	LAM	1	0	0	StarDB	1	0	0
CXC MIT	2	1	50	MAGIC	1	0	0	Swinburne	1	0	0
				MAST II	3	1	33.3	TBL Narval	1	0	0
Castor	1	0	0	Mast	48	44	91.6	USNO	3	0	0
China VO	3	0	0	NAO	3	3	100	VO Paris	8	0	0
ESAVO	6	0	0	NAOC	1	0	0	VOPDC	1	0	0
ESO	1	1	100	NCI	12	7	58.3	XCAT	15	0	0
GAVO DC	44	36	81.8	NCSA II	2	0	0	ivo://dame.astro.it/	2	0	0
GRAAL-VO	1	0	0	NEA	1	0	0				

Comparison of Validators

Tom McGlynn, Renaud Savalle, Menelaus Perdikeus

Questions

- Are we testing the same things?
 - Can we use common language?
- ➔ Are we getting the same results?

Haven't really addressed the third question yet but we've got a good start on the first two.

Validator coordination

Detailed comparisons of Cone Search and SIA Validators
(see links on Ops Wiki Page)

Comparison and Standardization of VO Cone Search Validation Services

Introduction

Currently three sites run validation tests of VO services world-wide: VOParis, ESA and the HEASARC which uses validators developed at the NCSA.

This document compares the validation tests for the VO-Paris, ESA and NCSA/HEASARC cone search validator and tries to suggest a common nomenclature for use in describing specific tests. For each site the tests run are described using existing inputs files. Each test is prefixed with a suggested standard name in brackets []. In a number of cases a test at one site combines what is done at multiple tests in another site. The 'standard' tests are defined at the finest granularity so that the combining test will ...

Cone Search Validation

Test	Description	VOParis	NCSA/H EASARC	ESA
G1	URL is visible	X	X	X
G2a	Result is well-formed XML			X
G2b	Result is XSD valid			X
G2c	Result has appropriate mime-type			X
G2d	Mime type is text/xml (recommended)			X
G2e	Mime type is not text/xml;content=x-votable			X
G2f	Mime type is not text/xml;votable			X
G2g	Result matches VOTable XSD			2.2a-i
CS 2.1a	VOTable has single RESOURCE	X	2.1a	
CS 2.1b	VOTable has single TABLE		2.1b	
CS 2.2a	SR=0 returns 0 rows			2.2b-i
CS 2.2b	Standard query returns >= 1 row			2.2b-ii
CS 2.2.1a	One field with UCD ID_MAIN	2.2.1	2.2.1a	2.2c-i
CS 2.2.1b	ID_MAIN field has type char		2.2.1b	
CS 2.2.1c	ID_MAIN field has arraysize specified		2.2.1c	
CS 2.2.1d	ID_MAIN values are unique		2.2.1d	
CS 2.2.2a	One field has UCD POS_EQ_RA_MAIN	2.2.2	2.2.2a	2.2c-ii
CS 2.2.2b	RA field has type double		2.2.2b	
CS 2.2.2c	RA field does not have arraysize		2.2.2c	
CS 2.2.3a	One field has UCD POS_EQ_DEC_MAIN	2.2.3	2.2.3a	2.2c-iii
CS 2.2.3b	Dec field has type double		2.2.3b	
CS 2.2.3c	Dec field does not have arraysize		2.2.3c	
CS 2.2.4	At most one PARAM/FIELD with UCD obs_ang-size		2.2.4	
CS 2.3a	Errors are properly formatted	2.3	2.3a	2.3b
CS 2.3b	Error messages are unique		2.3b	
CS 2.3c	No INFO error messages in valid response			2.3-ii

Comments

- Suggested approach for nomenclature:
[Standard prefix] [section number] [Requirement within section as alphabetic suffix]
The section number may be extended if there are explicit but unnumbered subsections (e.g., bulleted list)
- Looking only at Musts. Most validators also give advice on should/may's.
- ESA does a much more detailed analysis of the low level protocol
- NCSA reports on tests in protocol at finer granularity
- Unclear to me that SR=0 requires no results (CS 2.2a) but this is common dialect.

SIA Validation Comparison

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
S11 4.1	No error seen in legal query		4.1	
S11 4.2.1a	Must have RESOURCE with name 'results'		4.2.1a	4.2.1a
S11 4.2.1b	RESOURCE with name 'results' must have single TABLE		4.2.1b	
S11 4.2.4.1a	Must have unique VOX:IMAGE_TITLE column	4.2.4.1	4.2.4a/a	4.2.4.a.i
S11 4.2.4.1b	Image title column must be type char		4.2.4a/b	
S11 4.2.4.1c	Image title column must have arraysize *		4.2.4a/c	
S11 4.2.4.2b	If INST_ID column found must have type char		4.2.4b/b	
S11 4.2.4.2c	If INST_ID column found must have arraysize *		4.2.4b/c	
S11 4.2.4.4a	Must have POS_EQ_RA_MAIN column	4.2.4.4	4.2.4d/a	4.2.4.a.iv
S11 4.2.4.4b	RA column must be double		4.2.4d/b	
S11 4.2.4.4c	RA column must be effective scalar		4.2.4d/c	
S11 4.2.4.5a	Must have POS_EQ_DEC_MAIN column	4.2.4.5	4.2.4e/a	4.2.4.a.v
S11 4.2.4.5b	Dec column must be double		4.2.4e/b	
S11 4.2.4.5c	Dec column must be effective scalar		4.2.4e/c	
S11 4.2.4.6a	Must have VOX:NAXES column		4.2.4f/a	4.2.4.a.vi
S11 4.2.4.6b	NAXES column must be type int		4.2.4f/b	
S11 4.2.4.6c	NAXES column must be effective scalar		4.2.4f/c	
S11 4.2.4.7a	Must have VOX:NAXIS column	4.2.4.7	4.2.4g/a	4.2.4.a.vii
S11 4.2.4.7b	NAXIS must have type int		4.2.4g/b	
S11 4.2.4.7c	NAXIS must have arraysize *		4.2.4g/c	
S11 4.2.4.8a	Must have VOX:IMAGE_SCALE column	4.2.4.8	4.2.4h/a	4.2.4.a.viii
S11 4.2.4.8b	IMAGE_SCALE must be double		4.2.4h/b	
S11 4.2.4.8c	IMAGE_SCALE must have arraysize *		4.2.4h/c	
S11 4.2.4.9a	Must have VOX:IMAGE_FORMAT column	4.2.4.9	4.2.4i/a	4.2.4.a.ix
S11 4.2.4.9b	IMAGE_FORMAT must be char		4.2.4i/b	
S11 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 must 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		

SIA Comments

- NAVO/NCSA is finer grained
- NAVO/NCSA tests required attributes of optional columns
- VOParis does additional testing of metadata queries (SI1 6.1.1/2)
- NAVO adds tests of data returned by service (SI1 4.2.4.22d/e)
- NAVO/NCSA validation more complex than CS, but VOParis is comparable. That approach may be more scalable to ever more complex standards.

Summary

- Validators seem to be performing similar tests but details and granularity can differ.
- Only NAVO tests are testing availability of data? Should probably be part of validation of data retrieval protocols.
- Still haven't done detailed comparisons of validators for results of particular checks.

Future directions

- Do detailed comparison of validation results: validate the validators!
- Look at existing SSA, SLAP, registry tests
- Encourage standard vocabulary.
- SIAv2 validator at VOParis in testing
- DataLink validator?