8th Meeting of the S-100 Working Group

S-100 Validation

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Agenda Item 3_12, 8_1 & 8_2

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AGENDA

- Report of sub WG
- Paper 8.1 S-100 Validation Tests and Cross-Product Validation https://portal.iho.int/share/files/714
- Paper 8.2 Proposal to standardise the naming convention and/or the structure of the validation tests https://portal.iho.int/share/files/713
- Topics that have come up during the week

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S-100 VALIDATION SUB GROUP MEETINGS

- S-100 WG7 Workshop – December 2022 – Kickoff meeting

- 4 VTCs
  - April 2023
  - July 2023
  - September 2023
  - October 2023

- 2 side group meetings
  - S-101 PT Brest, France, June 2023
  - ENC WG/S-101 PT Lombok, Indonesia, September 2023

- Aim to hold every 2 months, ideally hold more frequently but difficult with resources and other VTCs

https://iho.int/en/s-100-validation-sub-group

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S-100 VALIDATION “RULES”

- The checks are focused on datasets that will be used on an ECDIS for Phase 1 (Route monitoring)

- Have a rule that for a check to exist it has be related to a clause in S-100.
  - Trying to not repeat lessons from S-58 where we have some checks that are not directly linked in the standards
  - If we cannot stick to this may need to be flexible

- Producing initial list that can be expanded upon

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WORK COMPLETED

- Initially we started with the IIC tests that were produced a couple of years ago.

- Comments from 1st VTC and side meeting in Brest, France
  - Too specific
  - ECDIS focused
  - Some of the tests were potentially PS level tests
  - Need to think about purpose of the test
  - Format specific tests – consensus seems to be not to include at S-100 level but then are PS aware they need to cover them?

- Shared IIC tests with TWCWG & S-102 who have provided comments.
  - Resulted in WLA paper submissions

WORK COMPLETED

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- After June had a redirect
- Produce a set of tests from Parts of S-100 & Proposed S-101 PT tests
  - Tabulate and place on GitHub, grouped by Part Number
  - Members to review and raise issues in GitHub
- Initial tests Part1, Part 2, Part 4b, Part 5, Part 6, Part 7(not finished), Part 8, Part 10c, Part 17
  - Parts 15 (Data Protection Scheme) & 16 (Interoperability Catalogue Model) allocated
- Prioritised list remaining
  - 18 (Language Packs)
  - 10b (GML Encoding)
  - 9 (Portrayal)

IHO SUMMARY OF PROGRESS

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https://github.com/iho-ohi/S-100-Validation-Checks

S-100-Validation-Checks

S-100 Github repository for Validation Check development.

S-100 Validation Tests - DRAFT. Last updated 20/09/23.

Dev ID	Check ID	Description	Classification	S-100 Part	S-100 Clause	Introduced	Mc
S100_Dev0001		The basic data type must be one of the supported category types.		1	4.5	5.1.0	
S100_Dev0002		The Derived Type must be one of the types defined in S-100 or in the Product Specification		1	4.6	5.1.0	
S100_Dev0003		The Enumeration Type must be part of the valid identifiers in the Enumerated Type Declaration		1	4.7	5.1.0	
S100_Dev0004		The Codelist Type declaration must be one of the types defined		1	4.8	5.1.0	

- 152 checks on GitHub
- 52 10c checks to be uploaded
- 164 Proposed S-101 PT checks to be included

- **368 checks in total**

Not necessarily a good thing to have too many checks

- Need reviewing and combining/ simplifying where possible

- Also available in spreadsheet format

https://github.com/iho-ohi/S-100-Validation-Checks/tree/main/Documents

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S-101PT GENERIC S-100 TESTS – (PART 1)

- Have been reviewed and checked for duplicates against tests on GitHub
- Need linking to clause in S-100
- Will be included into S-100 validation checks, mostly 10a checks
- Need to potentially ‘elevate’ some of the tests to a more generic level
- S-100 Validation sub group will maintain these checks

https://github.com/iho-ohi/S-100-Validation-Checks/blob/main/Documents/Proposed%20S-100%20Generic%20tests%20from%20S-101%20PT.xlsx

COMMUNICATION

- Co-ordinating closely with S-101 Validation
  - Using the same naming convention
- Received validation tests from NIPWG, TWCWG & S-129
- Had initial communication with DQWG and Inland ENCs
- Mainly to raise awareness of the validation checks, but does there need to be a more formal task of review?
- All PS teams are welcome to join the sub group or invited to monitor the check development/comment on GitHub

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NEXT STEPS

- Will continue with writing checks and posting for review
- Reviewing checks following S-100 WG8 changes
- Review and incorporation of validation checks submitted by Product Specifications identified to be at S-100 level
  - However, Product Specifications will need to check for duplication in their own validation checks
- Next S-100 Validation VTC 22/01/24

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CHALLENGES & ONGOING WORK

- Availability of active contributors and availability to hold VTCs, generally same contributors across VTCs which makes it difficult to organise.
- Categorisation of checks
  - Likely to initially use the long name of each Part rather than Part number
  - Open to suggestions on how to categorise
- Use of GitHub
  - Currently using as a repository for documents, would like to use in a more integrated way
    - Difficult to get help and guidance on this
- Not clear on the completion deadline for this work

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WHERE HOLD S-100 VALIDATION?

- S-101 PT recommended that S-100 Validation Checks should be included as an Annex to S-98
- Registry - will require new registries to be developed
- S-158 – new standard, similar to S-58.
  - Requested at HSSC 15, 2023
  - Decision – HSSC 15/15

HSSC noted the establishment of the S-100 validation sub-group within S-100WG and agreed to reserve S-158 as a provisional number for S-100 Data/Product Level Validation Checks (including for those Product Spec listed in S-98), pending further discussions to come, noting that the use of this number will be finalized and decided at a later stage.

- Preference is for S-158 or an Annex to ensure we can continually update

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ACTION REQUESTED OF S-100 WG

- To note the report of the sub working group
- Provide guidance on where and how the S-100 Validation checks are to be held/stored or how to progress this discussion
- To provide guidance on the completion deadline for S-100 Validation, or how to progress this discussion

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8_1 S-100 VALIDATION TESTS AND CROSS-PRODUCT VALIDATION

- There are two parts to the paper:
  - Types of S-100 Validation
  - Cross-product “validation/consistency”

TYPES OF S-100 VALIDATION

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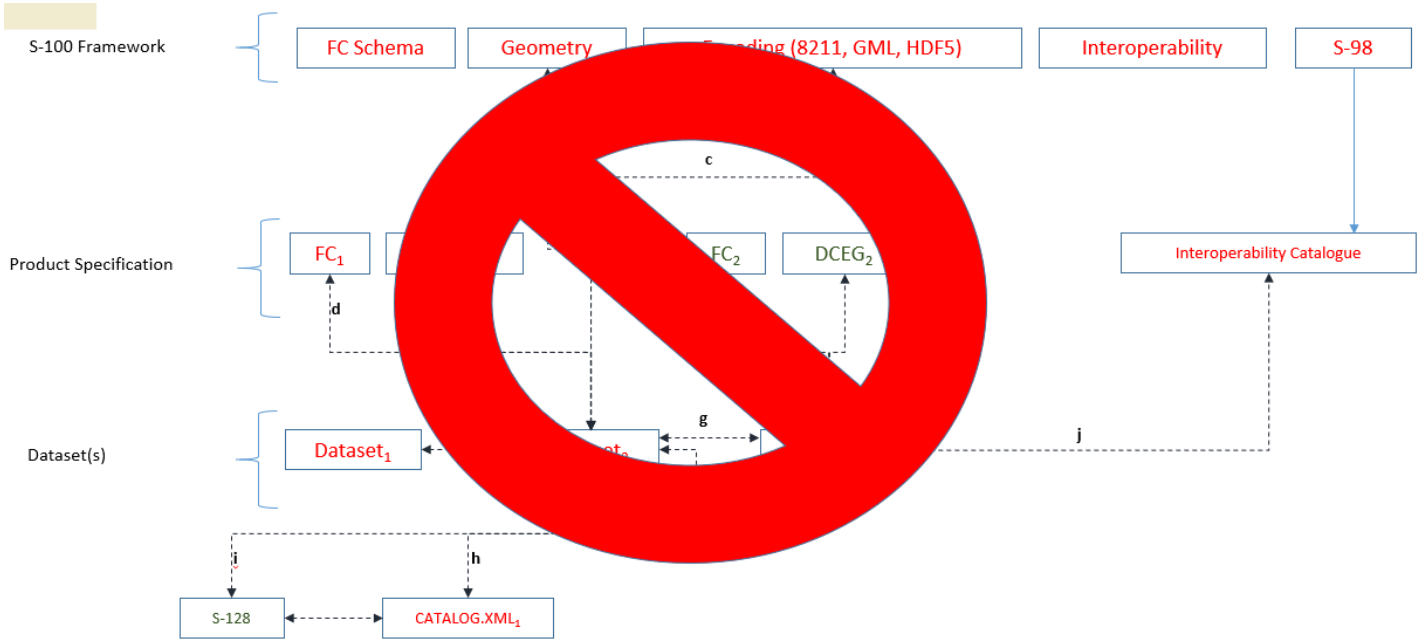
- Confusion over what is considered S-100 level checks and what should be at the Product Specification level.
- Originally tried to explain at S-100 Validation kick off meeting with diagram below.



Deemed too complicated

Paper submitted to simplify the definition

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WHAT IS S-100 VALIDATION?

- An S-100 Validation Test is referenced to the S-100 Universal Hydrographic Data Model and is therefore independent of any specific Product Specification.
- An S-100 validation test can be run against any relevant Product Specification without modification.
- Not all S-100 validation tests will apply to all datasets
- This encompasses all elements of the S-100 Framework so includes Datasets, Feature Catalogues, Portrayal Catalogues and the Registry.
- The aim of the S-100 Validation level checks is to ensure that datasets conform to the S-100 Framework, thus reducing any repetition of tests in individual Product Specifications Validation tests.

PRODUCT SPECIFICATION VALIDATION

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- Product Specification Validation tests should only contain tests which are unique to that product, for example, when the use of enumerates allowable at S-100 level is constrained by the Product Specification.

<u>What is meant by validation?</u>

S-100 Validation is different to existing IHO S-58 Validation Checks as these only apply to one type of product dataset (ENCs) and their corresponding exchange sets.

Discussion over what is actually meant by the term ‘validation’ and perhaps this term is no longer sufficient to convey all the aspects that are required for an S-100 age, with multiple products in use.

DIFFERENCES IN VALIDATION

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Product Specification level tests:

1. The dataset itself is valid according to the Product Specification Validation Tests
2. The dataset is valid against datasets of the same product type (e.g. S-101 vs S-101)

S-100 level generic tests:

3. S-100 level Validation Tests (apply to all datasets e.g. Feature Catalogue against Portrayal Catalogue, if a Portrayal Catalogue is present).
4. Tests of individual S-100 components themselves (e.g. whether feature/portrayal catalogues are consistent and conform to the S-100 schemas)

Additionally, there is another type of validation that has not been catered for here, which is whether a dataset is “valid” (or compatible with) another dataset of a different type e.g. S-101 vs S-102, a form of cross-product validation.

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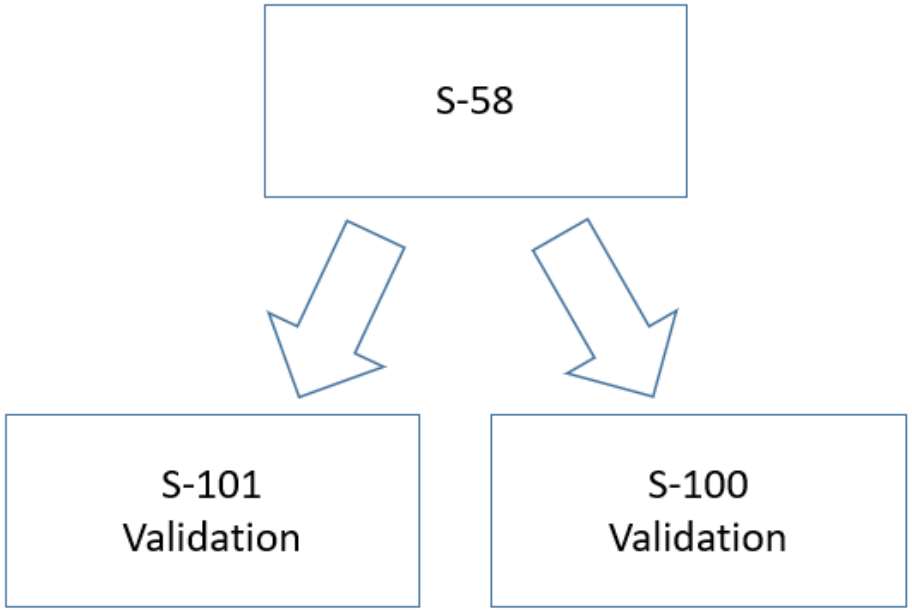
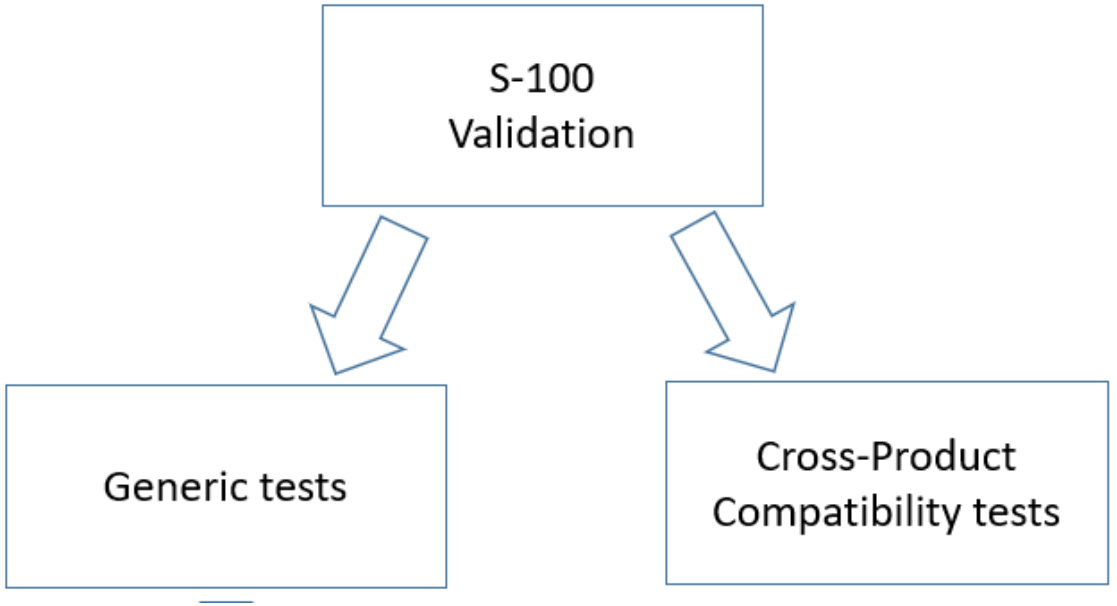
S-58 VS S-100





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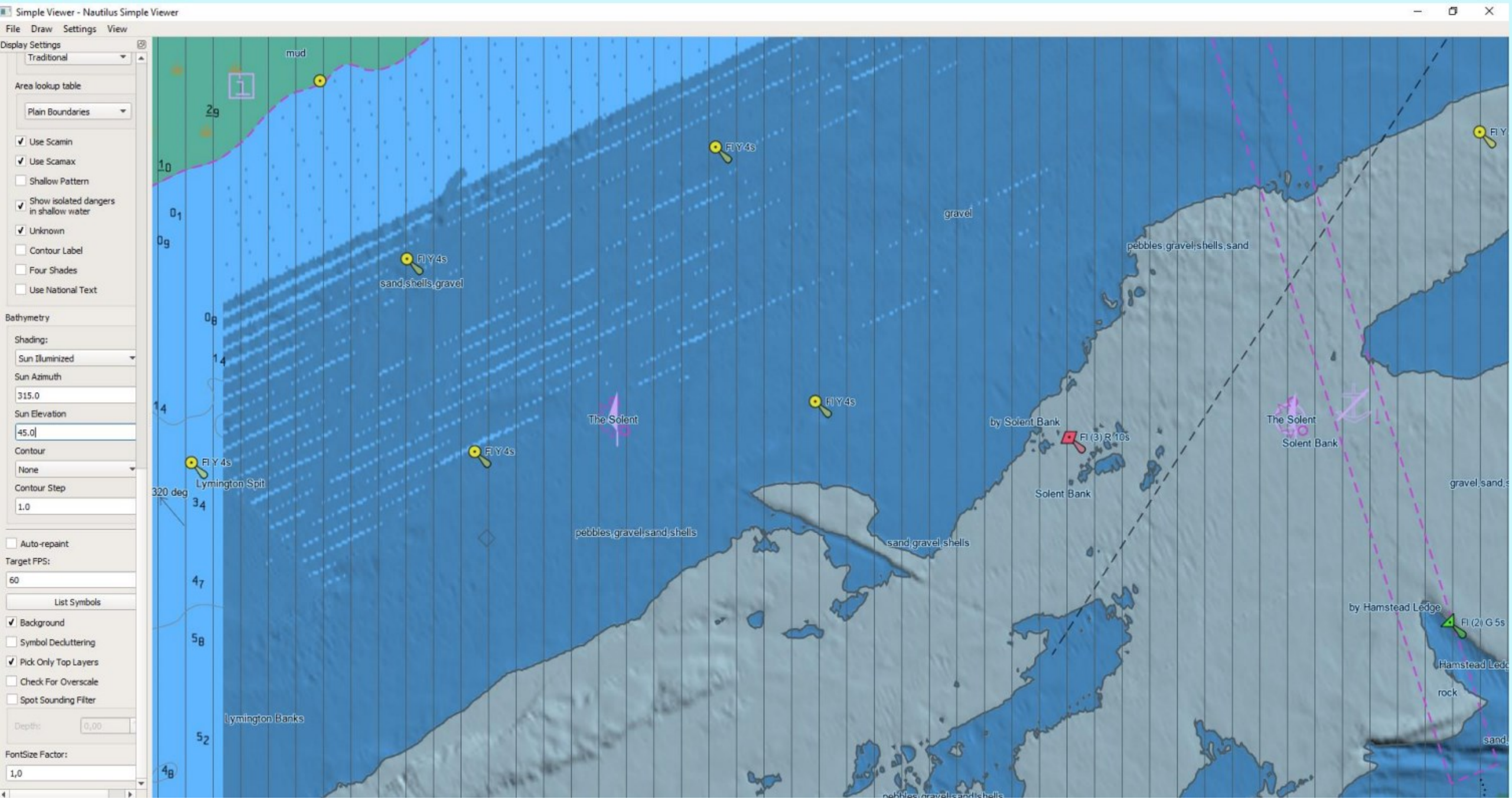
CROSS PRODUCT VALIDATION

- Certain product datasets are designed to be interoperable on an ECDIS
- No validation tests exist to check for the safety of datasets which are intended to be used together
- Can have an S-101 and S-102 dataset that both pass the S-100 Validation Tests and their Product Specification Validation Tests but content is so different that when used together on an ECDIS they could give misleading or dangerous information.
- Potentially exacerbated by different production schedules
  - it is possible that an S-102 dataset can contain shoaler depths than the underlying S-101 dataset, which is supposed to display the most-safe scenario

CROSS-PRODUCT VALIDATION

- Discussion on WLA implementation outputs:
  - Strong need for validation between S-102, S-104 and S-101 to ensure WLA can be implemented.
  - Validation required for
    - Consistent Vertical (Sounding Datums)
    - Holes in data
    - Non coincidental coverage of 102 and 104
    - Use of grids other than regular grids
- Proposals to be made to S-102 and S-104 groups for clarifying words on "Datasets intended for use on ECDIS"
- ECDIS OEM will not transform data, nor compute compatibility

Remember – S-100 Validation tests are ECDIS specific at this stage


Simple Viewer - Nautilus Simple Viewer
File
Draw
Settings
View
Display Settings
Traditional
Area lookup table
Plain Boundaries
Use Scamin
Use Scamax
Shallow Pattern
Show isolated dangers in shallow water
Unknown
Contour Label
Four Shades
Use National Text
Bathymetry
Shading:
Sun Illuminized
Sun Azimuth
315.0
Sun Elevation
45.0
Contour
None
Contour Step
1.0
Auto-repaint
Target FPS:
60
List Symbols
Background
Symbol Decluttering
Pick Only Top Layers
Check For Overscale
Spot Sounding Filter
Depth:
0,00
FontSize Factor:
1,0
mud
Fl Y 4s
sand,shells,gravel
gravel
pebbles,gravel,shells,sand
The Solent
by Solent Bank
Fl (3) R 10s
Solent Bank
Lymington Spit
320 deg
pebbles,gravel,sand,shells
sand,gravel,shells
Lymington Banks
by Hamstead Ledge
Fl (2) G 5s
rock

CROSS PRODUCT VALIDATION PROPOSAL

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- A set of validation tests, initially focusing on WLA and user selected safety contour are produced and agreed by the Product Specification teams, member state data producers and ECDIS OEMs.

- Focus on the interoperable use of these products together on an ECDIS for navigational use and will provide guidance to the producing agencies (and possibly RENCs) on when datasets can be considered safe for distribution for interoperable use on an ECDIS.

- May require member states to agree on what is considered safe practice for distributing multiple products in an area for interoperable use.

- Produced jointly between the S-98/S164 & the S-100 Validation sub groups in liaison with the respective Product Specification groups.

- The scope of these tests will only cover datasets that are to be used in an interoperable manner.

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ACTION REQUESTED OF S-100 WG

The S-100 WG is invited to:

a. Note the content of the paper.

b. Endorse the different types of validation required for S-100.

c. Invite the S-100 Validation subgroup to liaise with the S-98/S-164 subgroup and DQWG to clarify the definitions and scope of the different validation tests.

d. Endorse the drafting of an appendix to S-98 to contain Cross-Product Validation Tests

e. Task the S-98/S-164 & S-100 Validation Sub Groups to complete initial content of these tests by working with the relevant Product Specification project teams.

8_2 PROPOSAL TO STANDARDISE THE NAMING CONVENTION AND/OR THE STRUCTURE OF THE VALIDATION TESTS

- There are two parts to the paper:
  - Naming convention of S-1xx validation checks
  - Consistent structure for S-1xx validation checks
- Inconsistency in both across the different Product Specification validation checks
- Developed independently

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ANALYSIS

- Reviewed13 different Product Specifications
  - S-100WG, NIPWG, TWCWG, IALA, WWNWS working groups and the S-100 validation tests
- There are a number of different styles
- Generally follow same principles and generally agree within different WGs

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NAMING CONVENTION QUESTIONS

- Is there a need for a standardised naming convention across the Product Specifications?
- This could be easily managed by putting the Product Specification number at the front the check. e.g. S101_0001
- Is it necessary to stipulate how many digits the checks are numbered? Should it be three or four digits?
- Is it necessary to distinguish between dataset and exchange set checks, similar to the S-102 method of using X at the beginning of an exchange set check?
- Do we allow the use of textural names for the check ID, similar to the exchange set checks for S-131?

STRUCTURE OF CHECKS QUESTIONS

- Is there a need to standardise the test structure, or leave each Product Specification to determine what is required?

- Are there any Product Specifications that require a bespoke type of check that cannot be covered in a standardised structure?
  - If a standardised structure will not fit all validation tests, perhaps an agreed core structure can be agreed to ensure similar terminology is used, where appropriate.

- Is it necessary to standardise across the IHO Domain, or wider across all Product Specifications?

- If required, proposal is S-100 Validation sub group develops a standardised structure
  - Would need to be implemented by PS quickly to meet deadlines.

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ACTION REQUESTED OF S-100 WG

The S-100 WG is invited to:

a. Note the contents of the paper

b. Endorse the standardisation of a naming convention with the use of the Product Specification number at the front of the check and the use of only numerical Check IDs

c. Invite the S-100 Validation sub group to liaise with the Product Specification sub groups & Project Teams to agree a standardised structure (or core structure with flexibility) to the validation tests

d. Agree how widespread the standardisation is required, whether limited to: i) Working Groups & Project Teams ii) the IHO Domain iii) or across the whole of S-100 Product Specifications

e. Endorse the updating of S-97 to include guidance on standardised naming convention and check structure, if endorsed above

TOPICS THAT HAVE BEEN RAISED THIS WEEK

- Versioning - FC, PC, DCEG etc.
- Support files – txt & tiff
- Exchange sets
- 4 tests – suggest include as part of review of cross-product validation if approved
- S-98 - Agreed yesterday that S-100 VaI & S-98/S-164 will review S-98 Annex C and see if checks are required

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REQUEST

‘S-100 Validation’ will cover this…

Need to inform the S-100 Validation sub group or raise a GitHub Issue for review

elihh@gst.dk (or someone else in sub group team)
https://github.com/iho-ohi/S-100-Validation-Checks