Paper for Consideration by S-100 WG

Standardised Validation test structure and naming convention throughout S-100

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Executive Summary:	Proposal to standardise the naming convention and/or the structure of the validation tests
Related Documents:	IHO S-97 1.1.0
Related Projects:	Any S-100 Product Specifications, S-97

Introduction / Background

As part of the Product Specification development process outlined in S-97 (IHO Guidelines for Creating S-100 Product Specifications), developers are to produce validation tests, if required.

Further guidance is given in B-19 of S-97 on Validation Tests and Data Quality. This states that at least two types of validation tests are needed, datasets validation tests for individual datasets and package validation tests. Additional guidance is then given on the data quality measures in Part C, but none specifically on producing validation tests or their structure.

Whilst working on the S-100 validation tests, Product Specification project teams were requested to provide their working version of their validation tests. This was primarily to review whether duplicate checks have been produced at the Product Specification level that may now be incorporated in the S-100 level validation tests. Whilst looking at the different validation tests, it became clear that some have been developed independently and while similar do not follow a consistent structure or naming convention. This paper proposes that a standardised naming convention and/or structure is established for S-100 Product Specifications.

Analysis/Discussion

Upon the review of 13 different Product Specifications produced by S-100WG, NIPWG, TWCWG and IALA working groups and the S-100 validation tests, there are a number of different styles. It should be noted that not all Product Specifications have completed their validation tests and many of them are still in development. The different structures for the Product Specifications are outlined below, with a table showing the column headings used and the naming convention is described.

S-100 WG Product Specifications and S-100 Validation

S-100 Validation

Dev ID	Check ID	Description	Classification	S-100 Part	S-100 Clause	Introduced	Modified

The validation tests are using a Development ID while in development and when finalised will be given a final Check ID and the Dev ID will be deleted. The column Introduced references the version of S-100 that brought in the check and the Modified column will list the S-100 version that requires the check to be amended. The use of Introduced and Modified was recommended by the S-58 sub WG, as a way to keep a record on when checks changed.

Naming convention follows the format:

S100_Devxxxx e.g. S100_Dev0001 for development checks

Once the checks are finalised they will become S100_xxxx e.g. S100_0001

S-101 (Electronic Navigational Chart)

Part	Check ID	S-100 Reference	Short Name	Detailed Description	Check Message	Replaces S-58 Check(s)	Severity	DQ Theme	Rationale / Requirement

Naming convention follows the format:

S-101_Part or Appendix No._Check No. e.g. S-101_4_001 or S-101_B_001

S-101 has just started using a Development ID which follows the format S101_Devxxxx, similar to S-100 validation.

S-102 (Bathymetric Surface)

DQ Measure /Theme	Check ID	Context test (IF..) or initialization (SET..)	Check condition description	Check message	Check solution	Classification

Post – condition	S-100 reference	S-102 reference	Comments

The dataset checks and the exchange set checks are separate but in a similar structure, except the exchange set checks do not include the Context test (IF…) or initialization (SET…) column.

Naming convention follows the format:

S102_xxxx for the Dataset Checks e.g. S102_1004

S102_Xxxx for the Exchange Set Checks e.g. S102_X002

S-121 (Maritime Limits and Boundaries)

The validation tests are in a written format, with an example below.

A 1. Test case for attribute assignment to feature classes

a) Test purpose: Verify that all mandatory attributes associated with feature classes are provided.

b) Test method: Check that all mandatory attributes that are defined for each feature class in the Feature Catalogue are provided.

c) Reference: Appendix B, clause B 2.3.

d) Test type: Basic.

The naming convention follows the format A.x e.g. A.1

S-129 (Under Keel Clearance Management)

No.	Check Description	Check Message	Check Solution	Conformity to:	Apply to:

These validation tests follow the same structure as the majority of NIPWG Product Specifications. The 'Apply to' column specifies whether the check is relevant to a Base (B), Update (U) or Post-Update (S) dataset.

Naming convention follows straight numerical ordering from 1-27 e.g. 22

Nautical Information Provision WG (NIPWG) Product Specifications

S-122 (Marine Protected Areas), S-123 (Marine Radio Services) and S-127 (Marine Traffic Management) follow the same structure:

No.	Check Description	Check Message	Check Solution	Conformity to:	Apply to:

The naming convention follows straight numerical ordering from 100 e.g. 101 and follows sequentially. This does mean that these Product Specifications have the same Check ID for the checks, but they are registered in different Product Specifications.

S-131 (Marine Harbour Infrastructure)

DQ Measure / Theme	Check ID	Check condition description	Check message	Check solution	Conformity	Classification	Apply to

The dataset checks and exchange set checks are separated but in a similar structure, except the exchange set checks do not include the Apply to column.

Naming convention follows the format:

xxx for the Dataset checks, starting at 100 e.g. 115

Textural name for the Exchange Set Checks e.g. InvalidAgencyCode or DigitalSignatures

Tides, Water Level and Currents WG (TWCWG) Product Specifications

S-104 (Water Level Information for Surface Navigation) and S-111 (Surface Currents) are combined.

DQ Measure / Theme	Check ID	Short Name	Prerequisite check(s)	Check condition description	Check Message	Check solution

Classification	Post-condition	S-100 Reference	S-1xx reference	Comments

These checks are listed as common HDF5 dataset checks, there are additional generic checks but some of these will likely be included in S-100 validation tests.

Naming convention follows the format:

PX-xxx e.g. P5-107

World-wide Navigational Warning Service (WWNWS) Product Specifications

S-124 (Navigational Warnings) follows the same structure as the NIPWG Product Specifications but have not used the 'Apply To' column.

The naming convention follows straight numerical ordering from 100 e.g. 101 and follows sequentially.

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Product Specifications

S-201 (Aids to Navigation (AtoN) Information)

S-201 Check No.	S-58 Check number	Check description	Check message	Check solution	Reference	Data Quality Element	Category

Naming convention has not yet been determined yet the S-201 Check No. have not been allocated.

S-240 (DGNSS Station Almanac)

No.	Check Description	Check Message	Check Solution	Conformity to:	Apply to:

It is intended to include the data quality element to each check.

The naming convention follows straight numerical ordering from 100 e.g. 101 and follows sequentially.

There are two separate issues for discussion.
1. **Naming Convention**

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?

2. **Structure of checks**

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?

Conclusions

From the Product Specifications that have been produced so far, the validation tests generally follow a similar pattern but they are not consistent in how they name or structure the checks. There is potential for confusion from the validation tests, especially when data producers start producing multiple products in a production office.

Recommendations

Recommend using an agreed naming convention that uses the Product Specification number and then a numerical number for the Check ID of checks e.g. S101_0001.

Depending on outcome of discussions from structure of tests, either agree they can be different or ask the S-100 Validation sub group to produce a standardised structure or core structure with flexibility, in liaison with the Product Specification developers.

Justification and Impacts

The justification is to provide standardisation of the tests, prior to the final release of the operational version of the Product Specifications. This will provide consistency across all the products from release.

Amending the naming convention and structure will create additional work for each of the Product Specifications and the structure would need to be agreed quickly, with cooperation from the Product Specification developers.

Action Required 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