TSMAD 24/DIPWG4 11.3A

Paper for Consideration by TSMAD

Comments for the next edition of S-102

Submitted by:	United States (NOAA)
Executive Summary:	The United States (NOAA) has some additional comments for S-102 and would like them to be considered for the next edition of S-102
Related Documents:	Any relevant documents and references to the extent that they are known to the originator.
Related Projects:	Any related projects that may impact upon considerations

Introduction / Background

The S-102 – Bathymetric Surface Product Specification represents a major step forward in the utilization of S-100 in the development of product specifications and the United States endorses this effort and voted for the publication of S-101 edition 1.0.0.

As part of its internal review process, the United States (NOAA) sent the draft product specification to the University of New Hampshire – Joint Hydrographic Center for additional comments.

Analysis/Discussion

As part of its internal review process, the United States (NOAA) sent the draft product specification to the University of New Hampshire – Joint Hydrographic Center for additional comments. As a result UNH had 14 comments regarding S-102. These comments are located in Annex 1 of this paper.

Recommendations

While these comments were not considered showstoppers and should not hinder the publication of S-102, the United States (NOAA) feels that they should be considered for the next edition of S-102.

Justification and Impacts

As stated above, the United States (NOAA) feels that these comments will not impact the publication and implementation of S-102, however, we feel that it may bring greater clarity to the standard.

Action Required of TSMAD

The TSMAD is invited to:

Note the United States (NOAA) comments towards S-102

Agree to adjudicate the comments for the next edition of S-102

ANNEX 1

S-102 Draft at Ed. 1.0 of 2012
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1. It isn't clear from the draft whether SI units will be required or just recommended. They should be required, however, as a matter of simple sanity. Note that they are mandatory and defined by default in ONS BAG with (intentionally) no way to specify an alternative, which would make it difficult to maintain compatibility from S-102 to BAG readers (i.e., if S-102 files had US Imperial Survey Feet for example).

2. @ 7.5.1. The requirement that BAGs are seamless between datasets might be problematic if this is required of tiles when projected on a global scale.

3. @ 9.1. The statement here seems to suggest that the Digitial Certification block is only mandatory when the document is intended for use for navigation, and is optional through the rest of the scheme. While that's acceptable, it would be nice if the use of certification was strongly encouraged everywhere, mostly for the error detection aspects of having a strong hash available.

4. @ page 10, footnote 1. The wording here seems to suggest that in the future S-102 will be called 'BAG' and will subsume the requirements of the OpenNavSurface project. I don't believe that this is the case, since BAG will continue to innovate new techniques and specifications outside of the S-102 process (since the IHO approvals process is very slow), although with the clear intent that they should eventually be pulled back into S-102 as they are proven. One would hope that this is the intent, if not the wording, of the document.

5. @ 9.2.1 (page 13). I'm not sure what the intention is with the S102_CorrectionCoverage (establishing a 'pedigree,' but of what?) I'm pretty sure, however, that BAG doesn't have one as is, and therefore if this is required it will break compatibility; and if it exists in an S-102 format file, it will be ignored (at best) when being read as a BAG.

6. @ 9.2.2. The final clause of the final sentence on page 13 ("unless other options are stated") should go away. Apart from being distinctly unclear, if read in the strongest fashion it would allow license for variation from the axiomatic definitions that S-102 inherits from BAG which this statement was meant to protect. The intent of the rest of the document is very clearly that these axiomatic definitions (e.g., of coordinate axes, scan order, etc.) are to be retained, and this just muddies the waters.

7. @ 9.2.3.1.4. The wording should indicate that minimum uncertainty is unipolar and therefore that values of minimum < 0 are not allowed (i.e., the range is R^+\{0}, not R). This is clear from wording later in the document, but should be here at the definition for clarity and completeness.

8. @ 9.2.3.1.7. The offset vectors should be constrained to align with the coordinate axes. BAG assumes that this is the case, making this a compatibility problem.

9. @ 9.2.3.13.5. It isn't clear what the ordering should be for the positions within the tracking list (although it should follow the ordering of the axes, and therefore be easting/northing or longitude/latitude), although that's perhaps an encoding issue and better dealt with elsewhere.

10. @ 9.2.3.14. I'm not sure that BAG has an EX_GeographicExtent in this context (although I may be wrong). It could readily be accommodated in the layer metadata, however, if required --- it just might not be used for anything, and possibly wouldn't be preserved. I'm open to persuasion that we should incorporate this if there really is a desperate need for it.

11. @ 9.2.4. I really think it's important that the standard says something about the algorithms to be used for the DSS, and how the results are going to be represented in the document. If this isn't the case, it's possible, even likely, that profiles of the standard adopted nationally will be incompatible either in algorithm or in implementation. That would somewhat negate the point of the process.

12. @ 9.2.10, Table 8, 'axisNames' attribute. The indication is that tiling scheme axes should be longitude/latitude. This may be difficult to achieve where the BAG grids that make up the tiles are in projected coordinates. Could this also be easting/northing?

13. @ A.1, Table A.2, 'False Easting Northing Units', 'Axis Units'. This is a major problem. BAG requires that all coordinates (and everything else) use SI units, and do not include a means to specify anything else. Under this proposal, S-102 files read as BAGs will therefore be misinterpreted. In addition, allowing the freedom to specify particular units is at best a false freedom: all that it has done elsewhere is make it more difficult to interpret data, and therefore make processing slower. BAG was carefully designed to make as many assumptions about issues like this so as to reduce the amount of interpretation that is required --- options like this will make S-102 sub-optimal. I would strongly recommend that units be defined axiomatically; if the international community really feels that there should be a unit-of-measure metadata element, then it should be required to be metres only (or degrees if they choose to make unprojected grids).

14. Given the genesis of the document, it's not surprising that the BAG name is used in the text in various places. I think this makes it possible that there might be confusion between what the S-102 standard requires, and what ONS is doing with the future development of BAG. I believe it would be better that S-102 only at most refers to compatibility with BAG, but does not use it internally to describe its data structures.