ENC STANDARDS MAINTENANCE WORKING GROUP (ENCWG)

Paper by the AHO

Mismatching Agency Code Values in ENCs

Introduction

- Some producers compile ENCs on behalf of other countries using the same production databases. Having different instances of a database to manage different FOIDs is not practical and therefore the agency component of a FOID end up being different from the code in the AGEN field of the cell name.
- The AHO is of the opinion that there is nothing in the IHO Standards or Specifications that strictly prohibit the use of a different agency code for FOIDs and DSID/Cell name. Despite this, validation tools are reporting 'Critical Errors' when DSID.AGEN and the FOID.AGEN do not match.
- A test ENC (SB cell name and AU FOIDs) was loaded in 11 different ECDIS systems with no error messages reported. Based on this overwhelming result the AHO published, in July 2017, 46 SB ENCs with AU FOIDs. No problems have been reported by any stakeholders so far.

Introduction

S-57 Appendix B.1, Annex A (UOC) 4.1.0

1 Introduction

1.1 General

……

This document describes how to encode information that the cartographer considers relevant to an ENC. The content of an ENC is at the discretion of the Producing Authority provided that the conventions described within this document are followed. A “Producing Authority” is a Hydrographic Office (HO) or an organisation authorised by a government, HO or other relevant government institution to produce ENCs.

2.2 Data quality description

2.2.1 Production information

The Producing Authority of the ENC must be given in the cell file name and in the “Producing Agency” [AGEN] subfield of the “Data Set Identification” [DSID] field.

S-58 check #1518b: This check is correct and should be retained.

1518b	If the first 2 characters of the data set file name do not correspond to the value of the AGEN subfield of the DSID field.	Data set file name does not begin with the agency code corresponding to that set in the AGEN subfield of the DSID field.	Amend the first 2 characters of the data set file name.	2.2.1	C

Introduction

S-57 IHO Transfer Standard for Digital Hydrographic Data (Ed. 3.1 – November 2000)

4.3 Feature object identifier field

The feature object identifier field consists of the following subfields:

- producing agency [AGEN];
- feature Identification number [FIDN];
- feature Identification subdivision [FIDS].

4.3.1 Producing agency [AGEN] subfield

The allowable values for the "Producing Agency" [AGEN] subfield are defined in the IHO Object Catalogue. The IHO Object Catalogue contains a 2-character acronym and a corresponding integer value for each agency. If the producing agency is not listed, the AGEN subfield must be encoded as a missing subfield value (see clause 2.1).

Any AGEN two character acronyms must be identifined in the IHO Object Catalogue (nowadays S-62).

Introduction

- **S-57 IHO Transfer Standard for Digital Hydrographic Data (Ed. 3.1 – November 2000)**

4.3.2 Feature Object identification number and subdivision [FIDN, FIDS] subfield

The "Feature Object Identification Number" ranges from 1 to 2^{32}-2. The "Feature Object Identification Subdivision" ranges from 1 to 2^{16}-2. Both subfields are used to create an unique key for a feature object produced by the agency encoded in the AGEN subfield. The usage of the FIDN and FIDS subfields is not constrained and must be defined by the encoder.

The AHO is of the opinion that the original developers of S-57 envisaged that all countries would be producing their own products (they would manipulate the production tools that generate the ENC content - including FOIDs). That is why it says "… *Both subfields are used to create a unique key for a feature object produced by the agency encoded in the AGEN subfield'*. We now know that sometimes the 'authorizing agencies' are not the ones using the tools to produce the ENCs. In these cases, the FOIDs reflect the country code of the 'producer' (e.g. AU) not the 'charting authority' which two letter code is populated in the cell's name and the DSID AGEN field (e.g. SB).

Introduction

- **S-58 check # 7:** Looks for invalid FOID constituents values . This would be that:
  - AGEN code is not listed in S-62;
  - FIND is not an integer number ranging 1 to 2^{32}-2
  - FIDS is not an integer number ranging 1 to 2^{16}-2

7	For each feature object with invalid AGEN, FIDN or FIDS values.	Invalid values of AGEN, FIDN or FIDS.	Amend AGEN, FIDN or FIDS value.	Part 3 (4.3.1) and (4.3.2)	C

- This test is not designed to check FOID AGEN and DSID AGEN subfields are identical!

- **S-58 check # 1518a:** This check looks for invalid values of DSID AGEN

1518a	If the AGEN subfield of the DSID field is not one of the values listed in S-62 sections I and II.	Producing Agency code is not a valid S-62 value.	Amend AGEN subfield to a valid S-62 value.	2.2.1	C

The problem

- ENC validation tools are reporting ‘Critical Errors’ when DSID.AGEN and the FOID.AGEN do not agree (as per their interpretation of S-58 Ed 5.0.0 checks 7 and 1518b).

- IHO’s intention is that Critical Errors will become mandatory to fix before ENCs are cleared for release. This practice should start once software conforming to S-58 6.1.0 is available and in use by ENC producers.

Conclusion

- **Unless ENC validation tools and the new S-58 test dataset are updated to not report mismatches between FOID AGEN and DSID AGEN as 'Critical', the release or update of several currently published ENCs may end up being delayed or even stopped.**

The proposed solution

- Asses the benefits of adding an statement to explicitly clarify that although the 'Producing authority/Agency' code used in DSID's AGEN subfield and the ENC name must match they can be different to the one populated in a FOID's AGEN subfield. This can be done in:
  - section 4.3.1 of S-57 Main Document
  - section 2.2.1 of the UOC
- Liaise with the main manufacturers of ENC Validation tools to request the removal of any 'Critical error' related to mismatches between FOID AGEN and DSID AGEN. The existing validation checks may be downgraded from 'Critical' to 'Warning' with the only intention of detecting AGEN mismatches and allowing producers to check they were not created in error.
- If necessary, update the new S-58 test dataset to prevent the report of 'Critical errors' when FOID AGEN and DSID AGEN do not match.
- ~~Asses the possibility of removing check 1518a from S-58. It seems to look for the same issue than check # 7 does.~~
- Liaise with the S101PT in order to avoid similar misinterpretations being transferred to the S-101 Product Specification and/or DCEG.