

Paper for Consideration by S-101 PT9

Improvements to encoding Maritime Jurisdiction features in S-101

Submitted by:	United Kingdom
Executive Summary:	This paper proposes the addition of new features in S-101 to remove the suboptimal encoding of maritime limits in ENC's. This removes a current workaround and improves the user experience ensuring that ENC's can be used by producers to support due publicity.
Related Documents:	S-101 Edition 1.1.0
Related Projects:	S-121

Introduction / Background

- 1) S-101 currently provides information on maritime limits and boundaries to support navigation. In addition, the IHO has developed the S-121 data product specification to allow more detailed information on Maritime Limits and Boundaries to be exchanged. Reflecting the principles set out in ISO 19100 standards these two product specifications reflect different “universes of discourse” or more simply, different user audiences with different user needs. A key principle of S-101 is that it is driven by navigation user needs and this paper therefore proposes changes to improve S-101 to better support users and align to an appropriate extent with S-121. The change affects the DCEG, Feature Catalogue and Portrayal Catalogue, validation checks may also be impacted.

Analysis/Discussion

- 2) Currently S-101 1.0.2 DCEG 16.2 includes the following guidance.

“The clauses in Section 16 below provide guidance for the encoding of maritime jurisdiction areas. Occasionally, these “areas” may actually be defined as linear due to international treaties, or the areas may not be fully defined, and it may therefore be necessary to encode the boundary as a linear feature. Clause 2.2 defining features permitted for use in ENC and their geometric primitives does not allow many of the feature classes relating to maritime jurisdiction areas to be encoded as type curve.

If it is required to encode a linear maritime jurisdiction feature, it must be done using the corresponding feature class as outlined in Section 16 below. If the “curve” primitive is not permitted for the related feature class, the linear maritime jurisdiction feature must be encoded as a “very narrow” feature of type surface, and by masking all the edges of the area that are not relevant (that is, are not along the reference line – see clause 2.5.10). **Note that this method must not be used where an area can be defined.**

The “very narrow surface” should be a surface having an edge corresponding to the reference line and be at least 0.3mm in width at the maximum display scale of the ENC data. Caution notes for such areas must be encoded using the **complex attribute information** (see clause 2.4.6).

- 3) In S-101 we now have the opportunity to remove this “workaround” by extending S-101 to allow either allow additional geometry for the relevant features or by introducing new features with portrayal which are consistent with the limit feature types defined in S-121. Annex A of this paper lists the relevant feature types showing current features present in S-101 and S-121. It further suggests 7 new feature types for inclusion in S-101 1.1.0. These would all be of geometric primitive curve but would carry the same attributes as the equivalent zone feature in S-101.
- 4) Although this approach will require manual intervention when converting from S-57 to S-101 ENCs, a limited number of instances exist. Ultimately this change will more clearly and accurately represent information and avoid potential confusion caused by the current “narrow areas” workaround. It will also achieve greater alignment between the S-101 and S-121 data models. Notably this change will improve coastal state’s option to use ENCs as a means to give due publicity.

Recommendations

- A. S-101PT to consider adding 7 new feature types to represent maritime limits and baselines in S-101 as listed in Annex A. All features are registered in the GI Registry (Concept Register). (S-101 PT)
- B. Develop symbology to present these features (Portrayal Sub-group)
- C. Within the DCEG, enhance figure 16.1 to reflect the relevant feature types. (See redline at Annex B) Consequential action to be applied in DCEG 2.5.10 Masking and Fig.2.9 “Linear” Maritime Jurisdiction Area. (DCEG sub-group)
- D. Reflect in the S-57 to S-101 conversion guidance document guidance on how to convert data in these scenarios noting that manual intervention may be required. (ENCWG sub-group)

Annex A Maritime Limit and Boundary Feature Types (S-101 subset)

Current S-101 Features All geometric primitive surface only (1.0.1)	Proposed S-101 Feature All geometric primitive curve only	S-121 Features (1.0.0) (Relevant subset only)
Straight Territorial Sea Baseline		Straight Baseline
	Closing line	Mouths of Rivers and Bays
	Archipelagic Baseline	Archipelagic Baseline
	Territorial Sea limit	Outer Limit of the Territorial Sea
	Contiguous Zone limit	Outer Limit of the Contiguous Zone
	Exclusive Economic Zone limit	Outer Limit of the Exclusive Economic Zone
	Continental Shelf limit	Outer Limit of the Continental Shelf
Territorial Sea area		Territorial Sea
Contiguous Zone		Contiguous Zone
Exclusive Economic Zone		Exclusive Economic Zone
Continental Shelf area		Continental Shelf
	International Boundary	International Boundary

Key

	Baselines
	Limits
	Zones
	Boundary

Annex B Proposed Redline DCEG Changes

To be developed once draft is more final obtain word version from IHO as starting point