Paper for Consideration by NIPWG

S-127 draft Application Schema and DCEG

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Executive Summary:	Draft application schema for S-127 (Traffic Management) and outline DCEG are presented for feedback by NIPWG.
Related Documents:	NIPWG5-08.06
Related Projects:	S-100; S-122; S-123

Introduction / Background

This paper presents the recently developed draft of the complete application schema of the S-127 (Traffic Management) Product Specifications for NIPWG consideration and review. An outline of the DCEG with specific content for which NIPWG feedback is invited is also included.

References

NIPWG4-17.2 Traffic Management Application Schema Draft
NIPWG5-08.06 Provision of Underkeel Clearance Information

Analysis/Discussion

Under contract with IHB, a first draft of the application schema for S-127 Traffic Management product specification has been created. A draft application schema for S-127 (Traffic Management) prepared by the S-127 team in NIPWG was discussed at NIPWG4. The Application Schema being presented at NIPWG5 revises, refines, and elaborates the UML model in that document. Input from the NIPWG has been used, along with the data model on the NIPWG wiki.

- The hierarchy of feature classes in the NIPWG4 model was moderately revised and a root FeatureType abstract class was added (like S-122 and S-123).
- The NIPWG4 model was extended with additional features defined by NIPWG and believed to be relevant to this data product, e.g., Concentration of Shipping Hazard Area, Piracy Risk Area, Place of Refuge.
- The S-101 feature PilotageDistrict was added. Pilotage modelling now used three features, from the NPUB and S-101 models: PilotBoardingPlace, PilotageDistrict, PilotService. S-101 currently uses only PilotBoardingPlace and PilotageDistrict.
- Three alternative approaches to modelling tracks and routes are described in the Application Schema document accompanying this paper. One – the most complex, i.e., involving the most features and associations – is the tracks and routes model from S-101. The other two approaches simplify the S-101 model of tracks and routes by providing for aggregating geometry of S-101 component features. The simplest model defines a RouteingMeasure feature with a single thematic enumeration attribute that indicates the type of track or route (its values are the types or tracks/routes in the Tracks and Routes chapter of the S-101 DCEG (except ferry routes)). The other alternative is of intermediate complexity between the RouteingMeasure feature approach and the S-101 approach. It defines a different feature type for each type or track/route, thereby allowing different types of tracks and routes to have different attributes.
- A unified approach to modelling the availability of dynamic underkeel clearance information and dynamic water level data is also proposed in this model. It consists of an additional attribute to indicate whether dynamic information is available and whether the use of such dynamic information is mandated, along with the use of the ContactDetails information type to indicate the source of dynamic information.
- The modelling of information classes is the same as in S-122 / S-123.

The Application Schema draft accompanying this paper consists of the draft Application Schema section of the S-127 Product Specification, and describes the UML model. The DCEG attachment contains mainly material that is common to multiple product specifications, but also includes material

that may be pertinent to the discussions requested e.g., encoding guidance for the proposed RouteingMeasure feature.

NIPWG is requested to:

1) Decide which of the approaches to modelling tracks and routes is most suitable for S-127. The answer will depend on several factors, especially:
    a. Whether S-127 is expected to contain complete track and route information or only indicating the location and extent and attach notes, regulations, etc., or something in between.
    b. Whether S-127 portrayal of tracks and routes must be exactly the same as S-101, or whether indicating the boundaries or centrelines is sufficient.
2) Discuss and either endorse or propose revisions to the approach to modelling underkeel clearance information and dynamic availability of this and water level information.
3) Review the modelling of piloting with a view to simplifying the S-101 and NPUB approaches especially potential duplication between the three feature classes defined for piloting between NPUB and S-101.
4) Discuss and finalize definitions of classes and attributes which are used in S-127 and are either new to NPUB modelling, or were defined in the past but not finalized as part of previously defined product specifications.
5) Discuss the scope and name of this product specification, since the content even in the NIPWG4 paper appears to have diverged somewhat from "Traffic Management" in the strict sense. Also, the scope and definitions of the "Marine Services" product specification should be revisited. One suggested consideration may be whether the combined scopes of this and other ready or planned NPUB product specifications cover all of the NPUB domain. Review and revision of the SNPWG assignment of feature and information classes to data products, done at the Helsinki (2012) and Silver Spring (2013) meetings of SNPWG, could either be a part of this discussion or taken up separately.

As a separate matter, the question of portrayal of NPUB data products may also need to be revived. It should be noted that no portrayal is specified in S-122 and S-123 due to the ongoing status of the S-100 portrayal discussion, and at this time no portrayal is planned for S-127.

Conclusions

Feedback received on the application schema and DCEG will be used to prepare a complete S-127 product specification package, including the feature catalogue and GML encoding. The first draft of the product specification is expected to be circulated for NIPWG review in May 2018.

Action Requested of NIPWG

The NIPWG is invited to:

a. Discuss the approach to modelling tracks and routes and select one of the approaches for S-127.
b. Discuss the approaches to modelling underkeel information and piloting.
c. Review definitions of new classes and attributes used in S-127.
d. Review the application schema draft and provide comments.
e. Discuss the scopes and names of this product specification and others in the NPUB series.
f. Reopen the question of portrayal for NPUB data products.