

Paper for Consideration by NIPWG

[Provision of tests data sets]

Submitted by:	Republic of Korea (KHOA)
Executive Summary:	This paper describes the major results of test study of NPUB product like S-122, S-123 and S-127.
Related Documents:	
Related Projects:	KHOA S-100 Test bed project

Introduction / Background

KHOA has a plan to create NPUB data such as S-122, S-123, S-127 to support SMART Navigation Project of ROK. As 3 types of S-122, S-123, S-127 standards has been developed, KHOA created NPUB TDS(Test data sets) and tested. This paper is a report of the NPUB service's TDS creating S/W, results and tests.

Analysis/Discussion

NPUB data creating S/W Tools

The format of the NPUB data is the S-100 GML and according to the GML application schema design procedure for the S-100 data product defined in the S-100 standard, the S-122, S-123 standards has their own GML Schema. A tool was required to create the NPUB TDS following the GML Schemas. The XML Editor such as Oxygen XML Editor and Altova XML Spy was used to edit the GML data. Also CARIS S-57 Composer was used to customize complex spatial information and data included in NPUB data by customized product function of S-57 Composer. Figure 1 shows the registered results of NPUB product and Catalogue Control file for S-122, S-123, S-127 FC to CARIS S-57 Composer.



Fig. 1 Preliminary step to create NPUB data by CARIS S-57 Composer

Results of NPUB data creation

The KHOA research team analysed NPUB product standards and DCEG for S-122, S-123, and S-127 TDS production. For example, the following data were analysed as a basic documents for producing S-122 MPA TDS.

- A law for marine ecosystem conservation and management
- A law for marine protected area designation and management
- A regulation for marine protected area management

Note: FOR REASONS OF ECONOMY, DELEGATES ARE KINDLY REQUESTED TO BRING THEIR OWN COPIES OF THE DOCUMENTS TO THE MEETING

Test results of NPUB TDS by S-100 Viewer

Figure 2 presents the relation between GML Schema, Feature Catalogue and NPUB data models. NPUB TDS can be created following the NPUB GML Schema and its structure. Also, NPUB Portrayal Catalogue is required to present and portray data by symbols on ENC's display. Portrayal Catalogue should be generated following the rules and structure which is defined in NPUB Feature Catalogue.

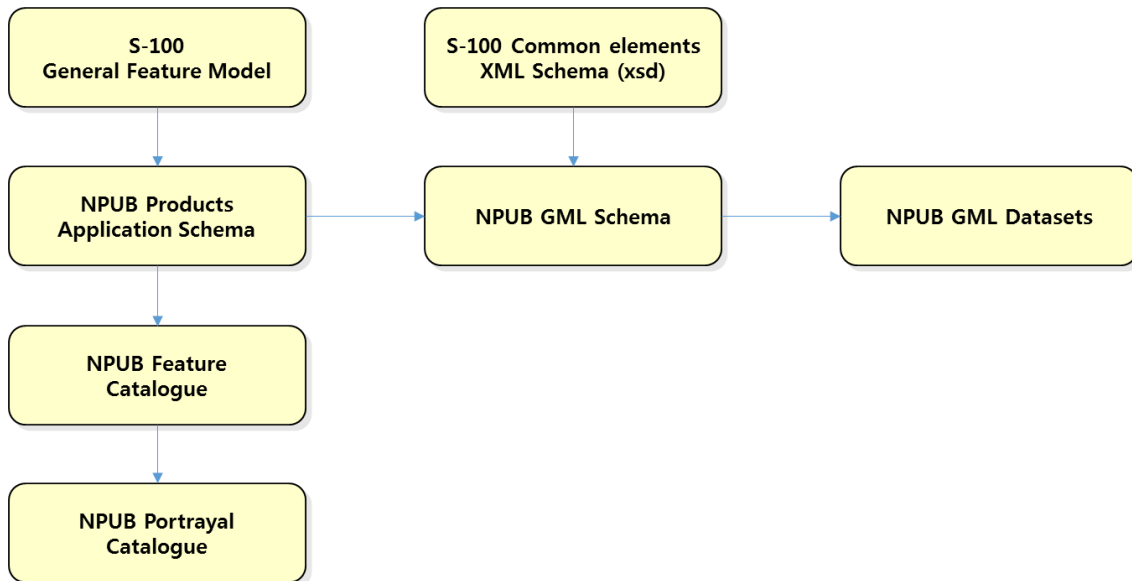


Fig. 2 Relation of NPUB Application, GML Schema, FC/PC

The KHOA team defined portrayal catalogue and rules following the S-122, S-123, S-127 feature types of Feature Catalogue to validate NPUB TDS through the S-100 Viewer S/W. The Portrayal Catalogue which was generated at this time is a draft version to test the NPUB TDS.

Figure 3 shows the applied result of S-122 MPA TDS to S-100 Viewer to check its geospatial information and attributes.

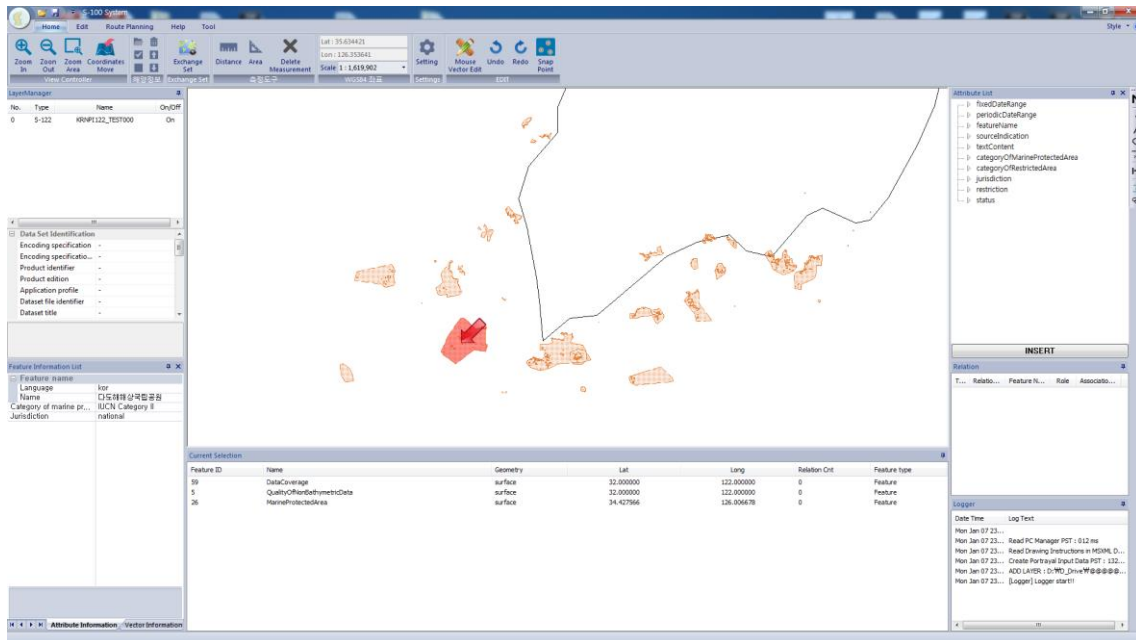


Fig. 3 S-122 MPA TDS validation through S-100 Viewer

Figure 4 shows the applied result of S-123 Radio Service TDS to S-100 Viewer to check its geospatial information and attributes.

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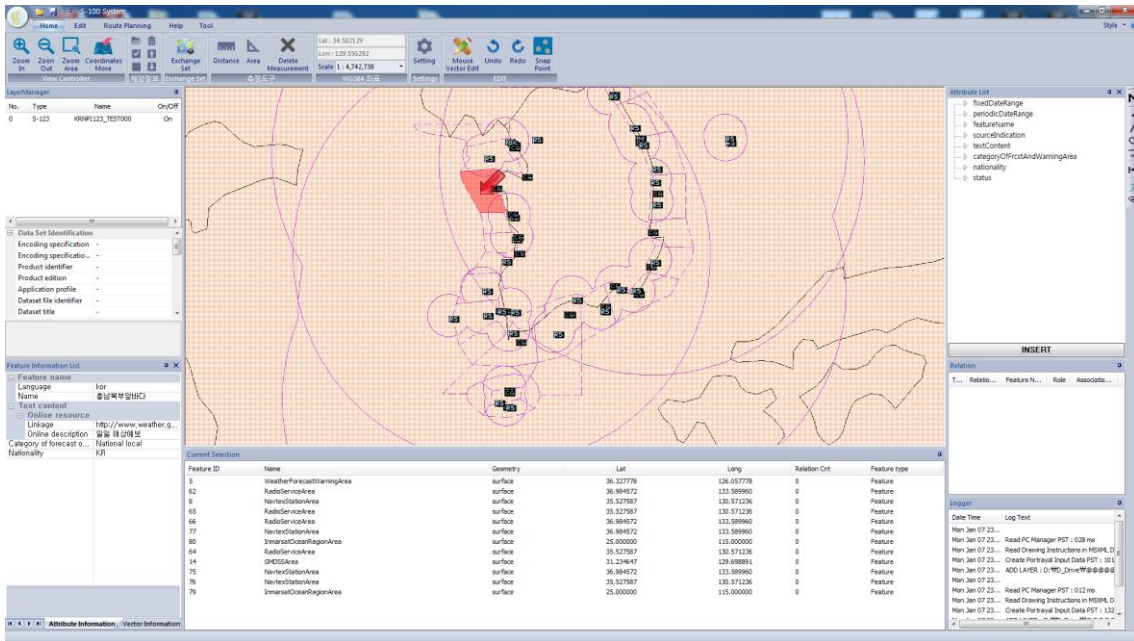


Fig. 4 S-123 Radio Service TDS validation through S-100 Viewer

The KHOA team applied NPUB TDS and FC/PC to KHOA's S-100 TestBed System which is designed to test S-10X product specification and TDS to enhance the S-10X standards.

Figure 5 shows the applied results of S-122 MPA TDS on KHOA's S-100 TestBed System with S-101 ENC's. The target area was GunSan city of ROK and S-122 TDS's attributes were checked by pick report function of S-100 TestBed System.



Fig. 5 Applied results of S-122 MPA TDS to S-100 TestBed System

Figure 5 shows the applied results of S-123 Radio Service TDS on KHOA's S-100 TestBed System with S-101 ENC's. The target area was GunSan city of ROK and S-123 TDS's attributes were checked by pick report function of S-100 TestBed System.

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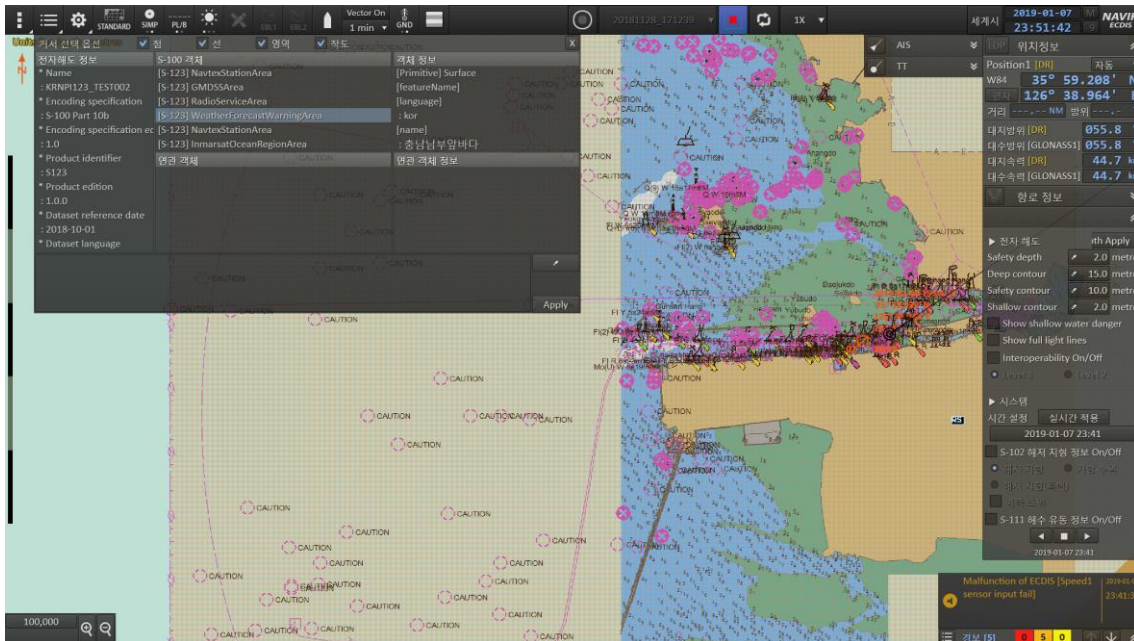


Fig. 6 Applied results of S-123 Radio Service TDS to S-100 TestBed System

Conclusions

KHOA created S-122, S-123, S-127 TDS as a NPUB Service to support the SMART Navigation Project of ROK in 2018. NPUB data was generated by XML editors and CARIS S-57 Composer S/W and TDS was validated and tested by the S-100 Viewer S/W which was developed by KHOA. The following implications were derived through this NPUB Service and TDS research.

- NPUB TDS creating S/W aspect: NPUB TDS can be created by commercial tools such as CARIS S-57 Composer S/W, however there is a difference from sample data of product specification. It should be developed and enhanced to create NPUB TDS in an easy way.
- NPUB test aspect: S-122, S-123, S-127 TDS was validated through the S-100 TestBed System and it shows too complex data on ECDIS display. Especially S-123 and S-127 data was overlapped between each feature instance. It is considered necessary to review the NPUB information utilization and portrayal for user side.

Recommendations

A new study of the user interface, information use case and NPUB data portrayal/presentation to ECDIS should be conducted.

Action Required of NIPWG

The NIPWG6 is invited to:

- a. Note and discuss the paper.
- b. Discuss the recommendation proposed in this document
- c. Provide any comments for KHOA test bed project