Paper for Consideration by S-100WG5

Progress Report on S-100 Infra-System Development

Submitted by:	Republic of Korea (KHOA)
Executive Summary:	This paper reports S-100 Infra-system development since the S-100WG4 meeting.
Related Documents:	S-100WG4_2019_6.3_ S-100 Infrastructure Development S-100WG4_2019_6.13_S-100 GI Registry Updates and Plan for 3rd Registry
Related Projects:	KHOA S-100 Test Bed Project

Introduction / Background

1.   KHOA had reported the development of the 3rd S-100 GI Registry (beta version) at the last S-100WG4 meeting held in Alborg, Denmark in 2019. This document reports major improvements of the S-100 infrastructure, including S-100 GI Registry and Feature/Portrayal Catalogue Builders, and the development of S-100 launcher to integrate and manage the S-100 Infra-systems efficiently.

Analysis/Discussion

S-100 GI Registry

2.   The 1st generation GI Registry developed by the IHO was in operation until 2014. KHOA developed the 2nd generation GI Registry to support some information required by the S-100 standard. The 2nd GI Registry consisted of Feature Data Dictionary (FCD) and Portrayal register managing key factors such as Symbol, Line, Area fill, and Font.

3.   The 3rd GI Registry was launched last year supporting the entire portrayal factors required by S-100 standard 4.0.0 and the Metadata Register (MR), Product Specification Register (PSR), and testbed (TB). These PSR and TB support managing S-10X PSs with Feature/Portrayal Catalogue, Test Data Sets and Documents, etc.
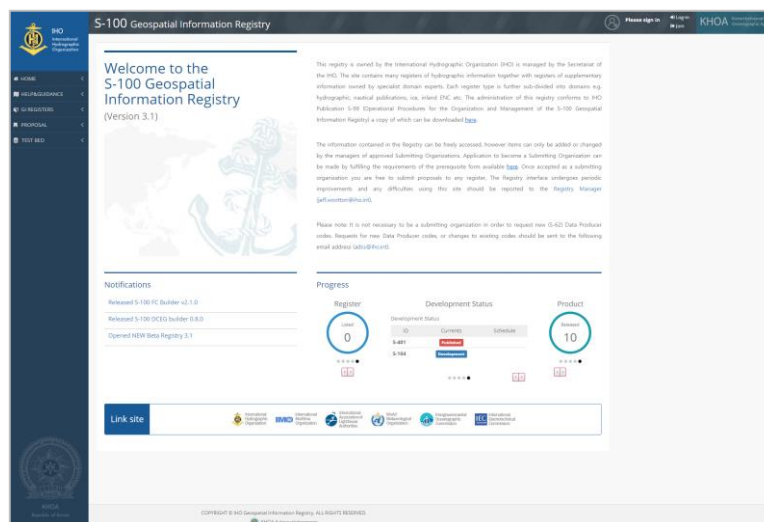

Fig. 1 3rd S-100 GI Registry

Feature Catalogue Builder

4.   The FCB must access the Registry to receive data for binding features. However, the current FCB has only function that users shall connect to Registry DB directly to load the data as a local DB and then is able to work. The upgraded FCB has been built with a Rest API enabling the connection between the Registry and FCB in a secure and efficient way.

5.   Other changes are to provide attribute binding for Information association and Feature association as specified in the PS with the UI improvement.
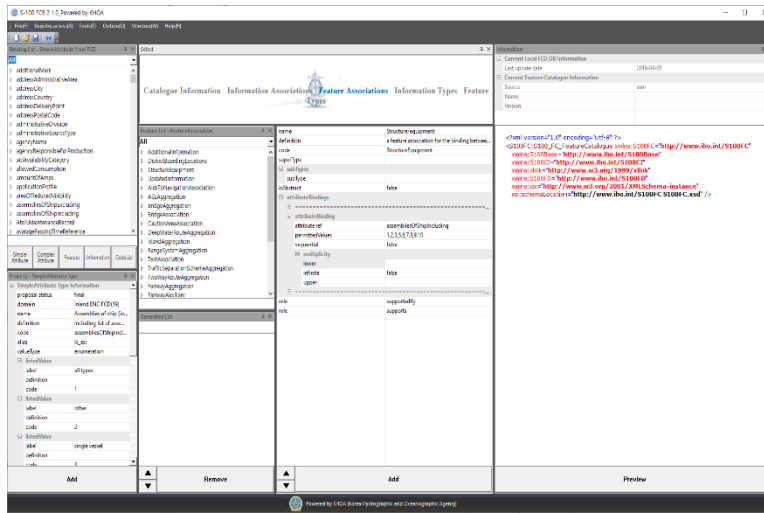
Fig. 2 S-100 Feature Catalogue Builder

Portrayal Catalogue Builder

6.   S-100 Portrayal Catalogue Builder has been built with an option to generate the new S-10X PC packages with a Template. Regarding the S-101 PC provided by NIWC, the functions of the converter algorithm to S-101 LUA PC using S-52 Lookup table were also applied to the upgraded S-100 PCB.
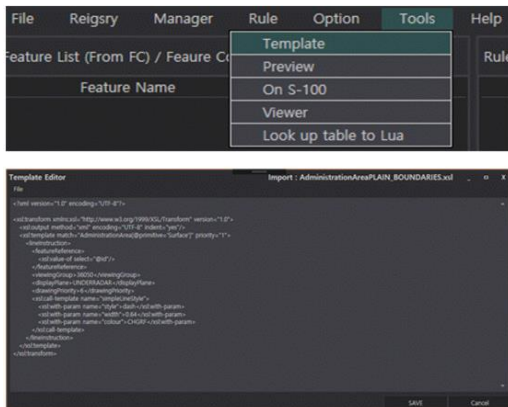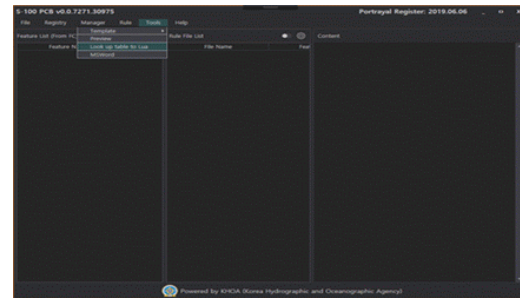

Fig. 3 S-100 Portrayal Catalogue Builder

Fig. 4 S-100 Portrayal Catalogue Builder

7.   In order to enhance connectivity to the Registry, the PCB also does not have direct access to the database, but develops the Rest API.

Other Toolkit

DCEG Builder

8.   DCEG Builder has been updated to support the export functions as the MS Word format generated by users. So it can be saved or converted a whole or some sections of the product specification.
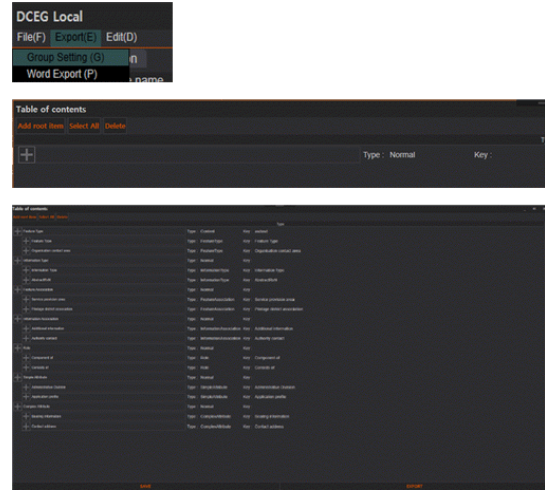
Fig. 5 S-100 Portrayal Catalogue Builder

Fig. 6 DCEG Builder

9.   It also can support to add extra information, not belonging to the DCEG.
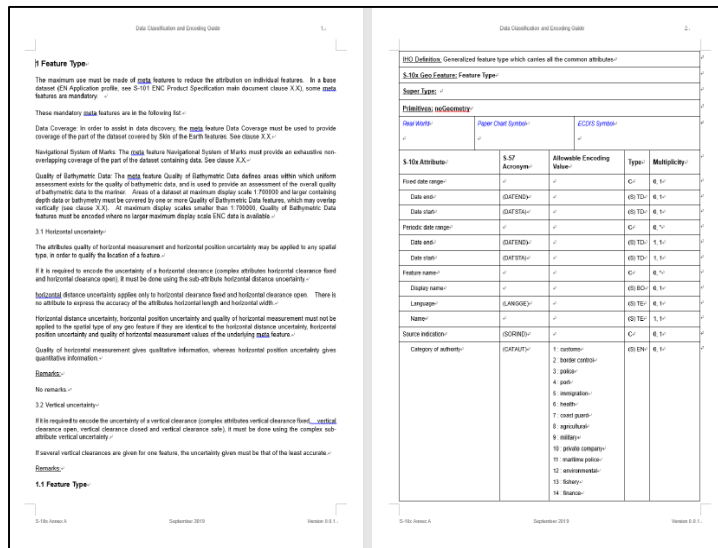

Fig. 7 S-10X DCEG Document generated by DCEG Builder

Symbol Editor

10.   KHOA Team researched SVG files generated by Adobe Illustrator (AI) and the S-100 Symbol Editor has been developed to convert S-100 SVG from the AI and then loaded into the Symbol Editor for additional modifications if necessary.
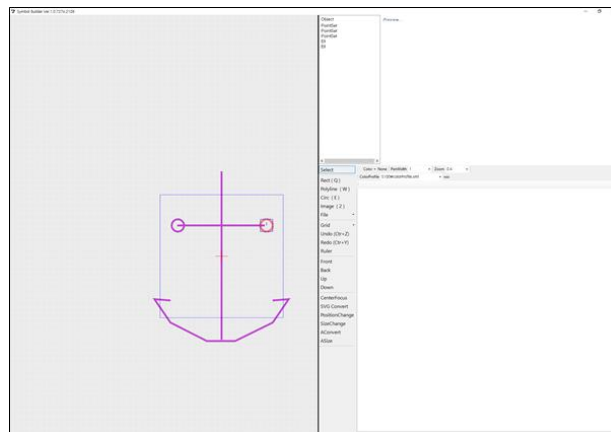

Fig. 8 Symbol Editor

S-100 Launcher

11.   KHOA has updated the previously developed S-100 Infra-systems such as S-100 FCB, S-100 PCB, S-100 DCEG Builder and TDS management systems. When each systems are updated with revision of standard, the distribution or release of S-100 Infra-system was supplied through the S-100 GI Registry in the present state.

12.   Release via S-100 GI Registry occurs some issues that was not immediately responsive to the latest S/W, and if new S-100 Infra-system was added but not distributed by S-100 GI Registry, users had problems that would not support new tools.

13.   To address this issue, an integrated S-100 Launcher has been developed as shown in Figure 9 to help integrate and manage S-100 Infra-system and maintain the latest updates at any time with network.

Fig. 9 S-100 Launcher

14.   The integrated S-100 Launcher supports to maintain the S-100 Infra-system versions in the GI registry. Also S-100 Launcher provides users download and run the up-to-date S-100 Infra-system.

Conclusions

15.   KHOA has supported the S-100 ecosystem by developing and maintaining S-100 infra-system. These include 3rd S-100 GI Registry and other S-10X production tools (FCB, PCB, DCEG Builder).

Recommendations

It is requested to review and comment on the S-100 infra-system developed by KHOA.

Action Required of S-100WG

The S-100WG5 is invited to:
        a. **Note** this paper.