Paper for Consideration by S-100WG3

KHOA Portrayal Catalogue Builder

Submitted by:	Republic of Korea (KHOA)
Executive Summary:	This paper outlines the development of KHOA PCB (Portrayal Catalogue Builder) and discusses utilization of the tool.
Related Documents:	None
Related Projects:	S-100 Test Bed Project

Introduction / Background

KHOA is developing S-100 infrastructure which is essential for developing S-100 based Product Specifications (PSs) and has been supporting the development and management of S-100 Registry and Feature Catalogue Builder (FCB) so far. We also participate in the test bed project under the S-100WG and support the testing of next-generation hydrographic information through S-100 viewer and S-100 test bed ECDIS.

This document introduces the development of KHOA Portrayal Catalogue Builder (PCB) which is a way of minimizing the impact on S-100 based PSs' development schedule caused by IHO PCB project, one of the essential infrastructures of S-100 based PSs, and discusses its applications.

Analysis/Discussion

Background of the Development

In order to develop S-100 based PSs, S-100 infrastructure consisted of Registry and Feature/Portrayal Catalogue Builder is required. Feature Catalogue (FC) has been specified as a structure so that machine can understand Application Schema. Portrayal Catalogue is a package which defines drawing instructions of primitives allowed for each feature type in FC.

Figure 1 shows the procedure of running S-100. S-100 FCD uses FCD Register information to write FC, and S-100 PCB uses Portrayal Register information to define drawing instructions for each feature type in FC and writes Portrayal Catalogue. S-10X Feature Catalogue and Portrayal Catalogue written by S-100 infrastructure are applied to S-100 Viewer along with S-10X Test Data Set (TDS) so standardized concept can be validated and hydrographic data can be identified.

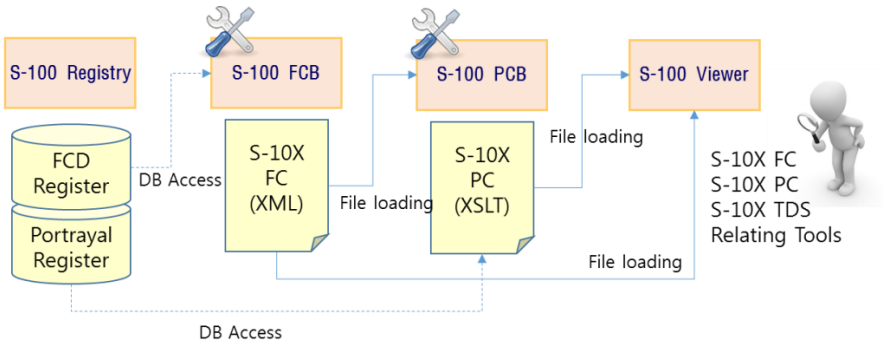

Fig. 1 Procedure of Running S-100

KHOA has been developing S-100 Registry and Catalogue Builder. In particular KHOA developed PCB to test next-generation hydrographic data using S-100 test bed ECDIS.

Outcome from Developing KHOA PCB

The purpose of PCB is to produce Portrayal Catalogue package which contains drawing instructions of feature types included in FCB. Figure 2 shows the structure of Portrayal Catalogue included in S-100 3.0 Part 9 – Portrayal. Portrayal Catalogue has Symbols, LineStyles and AreaFills folders which contain symbols of points, lines and areas

for Rules and feature types with drawing instructions included. It also has ColorProfiles and Fonts folders for colors and fonts. portrayal_catalogue.xml, metadata file for all the items in Portrayal Catalogue is located on the root folder of the Catalogue.

```
Root ---- (contains the catalogue named "portrayal_catalogue.xml")
    |
    |-- Pixmaps (contains XML files describing pixmaps)
    |
    |-- ColorProfiles (contains XML files with colour profiles and CSS2 style sheets)
    |
    |-- Symbols (contains SVG files with symbols)
    |
    |-- LineStyles (contains XML files with line styles)
    |
    |-- AreaFills (contains XML files area fills)
    |
    |-- Fonts (contains TrueType font files)
    |
    |-- Rules (contains XSLT files with templates)
```

Fig. 2 Structure of Portrayal Catalogue

Figure 3 shows the operating concept of KHOA PCB. In order to define drawing instructions for each feature type in FC, detailed parameters such as Viewing group, Display Plane, and Drawing priority and symbol information in SVG and XML formats are required. Such information can be used by loading information from Portrayal Register. KHOA PCB is stand-alone software thus can load S-10X FC XML files and portrayal items from Portrayal Register and define five drawing instructions (Null, Point, Line, Area, Text) for primitives allowed in each feature type. The outcome of writing in KHOA PCB is classified in folders as shown in Figure 2 and index information for all items are saved as portrayal_catalogue.xml file.

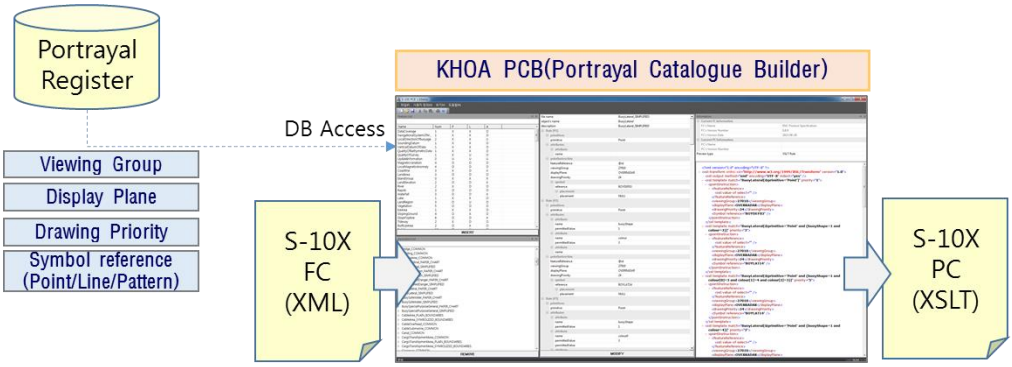

Fig. 3 Operating Concept of KHOA PCB

Figure 4 shows KHOA PCB with five parts for producing S-10X PC as laid out below:

- Part A: Displays the list of feature types in FC and allowed primitives. Displays the number of rules defined for each feature type and default instruction definitions.
- Part B: Displays the list of XSLT Rule file written by PCB.
- Part C: Screen for typing and displaying detailed content on each XSLT Rule file
- Part D: Basic information on Portrayal Catalogue package
- Part E: Screen for displaying XSLT Rule file or the overall package metadata

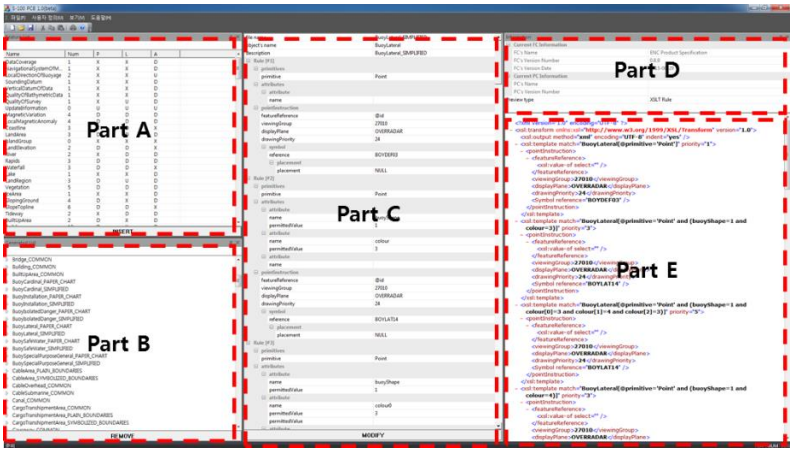

Fig. 4 Composition of KHOA PCB Screens

Limitations

KHOA PCB can be used for writing PC through S-10X FC but as for conditional symbology such as S-101, there are limitations so manual work is required.

Recommendations for Applications

The IHO has been making substantive effort to develop S-100 infrastructure and Member States and industry have been taking part. Web-based S-100 PCB has been developed for developing S-101 but it cannot be used for developing S-100 PSs at the moment due to additional update requirements.

KHOA PCB is stand-alone software which can be easily used if made interoperable with S-100 Portrayal Register. It has limitations but can be used as a tool for supporting S-100 PSs development until IHO S-100 PCB is further developed. Thus discussion on its use as such tool is invited.

Conclusions

KHOA developed PCB for S-100 technology and is validating PCB using S-101, S-122, S-123 and S-412 FCs. The IHO and other international organizations are developing S-100 based PSs but have difficulty defining Portrayal since PCB is not supported. KHOA PCB is stand-along software which can define simple Portrayal Catalogue so is regarded as a tool which can support the development of S-100 based PSs until additional update is completed.

Recommendations

It is recommended to use KHOA PCB a tool for supporting the development of S-100 based PSs until additional update to S-100 PCB is completed

Action Required of S-100WG

The S-100WG3 is invited to:

a. **Note** this paper
b. **Discuss** the possibility of using KHOA PCB a tool for supporting the development of S-100 based PSs until additional update to IHO S-100 PCB is completed