

**Paper for Consideration by HSSC7****S-100 Registry Way Forward**

<b>Submitted by:</b>	S-100 Working Group Chair and Vice Chair
<b>Executive Summary:</b>	This paper documents the current status of the S-100 Registry and proposes a way forward for its continued maintenance
<b>Related Documents:</b>	CL 77/2014 TSMAD29/DIPWG7 11.12A Resourcing the function of the GI Registry Manager
<b>Related Projects:</b>	S-100

**Introduction / Background**

In November 2014 the IHB issued a circular letter (CL/2014) that called for the resourcing function of the S-100 registry manager after the retirement of former TSMAD chair Barrie Greenslade of the UKHO. This letter was issued as a stop-gap to resource the S-100 register until the IHB could recruit a new staff member to support this role which was agreed to at the 5<sup>th</sup> Extraordinary International Hydrographic Conference (EIHC-5).

The IHB submitted a paper at the final TSMAD meeting documenting the results of CL 77/2014 suggesting the following arrangements:

- (i) IHB to appoint Ms Su Marks as Registry Manager upon retirement of Mr Barrie Greenslade, in accordance with the provisions of IHO Publication S-99;
- (ii) Outgoing and ingoing Registry Manager to plan and implement an handover period for administration tasks, in liaison with the IHB;
- (iii) S-100WG to identify issues requiring initiating development tasks before the end of 2015 and, if relevant, elaborate a short term development plan in connection with the adoption of S-100 Edition 2.0.0, taking into account the offers of ROK and USA;
- (iv) S-100WG to review the options to continue the operation and development of the Registry beyond 31 December 2015 in connection with the preparation of the IHO Budget for 2016;
- (v) S-100WG to report to HSSC-7

This paper will touch on the progress of the S-100 Register and future arrangements for the continued support.

**Analysis/Discussion**

S-100 is underpinned by the S-100 Geospatial Information Registry and component registers which contain all the information required for the description, production and delivery of S-100 based products and services. The backbone of the S-100 GI Registry is a set of MySQL databases with web-interfaces that have been developed using PHP. Currently the S-100 GI Registry maintains databases for the following information:

1. S-100 Feature Concept Dictionaries such as hydro, IENC, Ice, Weather, VTS ....
2. IHO Producer Agency Codes
3. IHO Product Specifications
4. IHO Portrayal Registers
5. Database for the storage of Feature Catalogues
6. Portrayal Catalogue Builder

In addition to the S-100 GI Registry there are two other components that interface with the database for the building of feature and portrayal catalogues.

The following outlines the current and future plans for the S-100 GI Register and associated components.

**IHO Register (current status):**

Su Marks from the UKHO is currently acting as the front end register administrator and NOAA is currently providing support for the database back-ups and will troubleshoot any other issues that may come up.

One of the main issues is that the current instantiation of the S-100 GI Registry and associated interfaces is essentially a prototype that was used to establish basic functionality. Through testing it was found that there were serious problems with the process of proposing new attributes and complex attributes. The S-100 WG Chair worked with the IHB to establish a clone server so that repairs to the interface can be made. Until the repairs are made no one can submit any proposals for new attributes and complex attributes.

**Feature Catalogue Builder (current status):**

The Republic of Korea has generously supported the development of the feature catalogue builder. They are currently connecting to a test version of the IHO register that they are maintaining for testing and development. They have successfully created a baseline version of the S-101 feature catalogue that is also being used to support the development of the Portrayal Catalogue Builder which is funded using the IHO Presentation Library funds.

**IHO Register (future plans):**

S-100 edition 2.0.0 was published in June 2015 and as a result, the existing IHO Register will need to be extended and harmonized to support codelists and any changes to the model that are in the latest edition. In addition, support for the product specification register and the revision to S-99 will also have to be addressed and the eventual connection to the Feature Catalogue Builder.

The Republic of Korea has volunteered to update the IHO register to edition 2.0.0 of S-100 when KHOA updates its national register (which is a copy of the IHO register) in line with edition 2.0.0 of S-100 and then give this to the IHO. In addition, this would include updating the web-interfaces that they have developed for their register and finalizing the connection to the feature catalogue builder. A link to the Korean national register can be found here: <http://112.166.134.152/new/main/>

The Republic of Korea expects that this work will be completed at the end of 2015 and after testing will then work with the IHB to migrate the new databases and web-interfaces to the IHO server.

NOTE: This activity would not affect how the portrayal catalogue builder interfaces to the IHO register.

**IHO Portrayal Register (current status and future plans):**

The first portrayal catalogue builder was interfaced to a portrayal register which was essentially a prototype. The tables implemented in a MySQL database but were not leveraging Relational Database design patterns and integrity controls (table relations, foreign key, validations etc). The database design was also not compatible with the S-100 Edition 2 Part 2 register data model. The prototype portrayal register also did not contain all the elements needed for an S-100 portrayal catalogue. In order to rectify this situation the IHB extended the Portrayal Builder Contract with Caris to provide a new portrayal register database. The requirements for this change proposal are as follows:

- Define a new portrayal register database model based on S-100 Part 2
- Support portrayal domains for non-hydro information such as weather
- Migrate the content as available, from S-52 into the new register
- Update the PCB to use the new Portrayal Register contents through by accessing content through prepared views.

This work was successfully delivered at the end of August and the next step is to design web-interfaces for submitting organizations to propose new symbology.

**IHO Portrayal Catalogue Builder (current status):**

The Portrayal Catalogue Builder has been completed. Because of all of the other outstanding issues with the S-100 Register and the need to eventually connect the Feature Catalogue Builder to the IHO register, the S-100 Working Group hasn't had the opportunity to utilize it.

**Conclusions**

Work is slowly progressing on hardening the infrastructure of the S-100 GI Registry. Once this is completed by late 2015 the support and management can be transferred back to the IHO pending resource availability. At that point the S-100 GI Registry should be able to accept new proposals to be processed according to S-99. While the work has mainly focused on the functionality needed to build new product specifications, minor updates still need to be made for implementation of product specification identifiers and ensuring that the process adheres to S-99.

**Recommendations**

It is recommended that the IHB resource the S-100 GI Registry Manager as soon as possible. The skillset required for this function has been outlined in CL 77/2014.

**Justification and Impacts**

The S-100 GI Registry is the backbone of S-100 and if the Registry fails to meet the expanding needs of the community of S-100 based product developers it will have a serious impact on the viability of S-100. The Republic of Korea, United States and the IHB have provided support to stabilize the S-100 GI Registry to prepare the transition of full time management to the IHB.

**Action Required of HSSC7**

The HSSC7 is invited to:

- a. Endorse the work of the Republic of Korea regarding the updated S-100 GI Registry
- b. Note the efforts of Su Marks and NOAA for managing the current S-100 GI Registry
- c. Agree to hire or contract a full time S-100 Register manager with the appropriate skillset out lined in CL 77/2014