

**2nd HSSC Meeting
Rostock, Germany, 26-29 October 2010**

Status Report on Inland ENC Development and Standardization

Submitted by:	International Inland ENC Harmonization Group (IEHG)
Executive Summary:	This paper describes the activities of the IEHG as it relates to Inland ENC development/implementation in Europe, North and South America, Russia and Asia. In addition to describing the legal authority, structure, organization, and procedures, an explanation is provided about the activities of IEHG in regard to the S-100 GII Registry, S-99 and IHO Working Groups.
Related Documents:	IHO S-57 Edition 3.1 → IHO S-100 → IHO S-99
Related Projects:	Nil

Objective of IEHG

To develop and to maintain a harmonized standards for an Inland Electronic Navigational Charts (IENC) suitable for inland navigation that are based on the standards of the International Hydrographic Organisation (IHO) for 'maritime' Electronic Navigational Charts (ENC).

Guiding Principles

- a. **Goal** - To agree upon specifications for Inland ENCs that are suitable for all known inland ENC data requirements for safe and efficient navigation worldwide, including Europe, North and South America, Russian Federation, and East Asia inland waterways.
- b. The **framework** for Inland ENC standards includes:
 1. Use of **IHO S-57** (Edition 3.1), including:
 - 'Maritime' ENC Product Specification (Appendix B1)
 - Object Catalogue (Appendix A)
 - Use of Object Catalogue (Appendix B.1, Annex A)
 2. A minimum **Inland ENC Product Specification** that includes mandatory requirements for safety-of-navigation on inland waterways, worldwide.
 3. An **Inland ENC Encoding Guide** that provides guidance on recommended object classes, attributes, and attribute values for encoding IENC data.
 4. **Inland ENC Feature Catalogue**.
 5. Establishment of an **Inland ENC Domain** for additional real-world, IENC features, attributes, and enumerations that are not already contained in IHO S-57 Edition 3.1 Object Catalogue in the S-100 Registry.
 6. Use of a e-mail based discussion forum as a means of communication.
 7. Align with the **IHO S-100** Standard for Geospatial Data and the **IHO S-99** Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry.

Inland Electronic Navigational Chart (IENC) has been formally defined as:

the database, standardized as to content, structure and format, for use with inland electronic chart display and / or information systems operated onboard of vessels transiting inland waterways. An IENC is issued by or on the authority of a competent government agency, and conforms to standards initially developed by the International Hydrographic Organization (IHO) and refined by the Inland ENC Harmonization Group. An IENC contains all the chart information necessary for safe navigation on inland waterways and may contain supplementary information in addition to that contained in the paper chart (e.g., sailing directions, machine-readable operating schedules, etc.) which may be considered necessary for safe navigation and voyage planning.

[IENC Encoding Guide, Edition 2.2, Feb 2010]

Recognition

As the competent international technical group on Inland ENC technical standards development, implementation and maintenance, IEHG is recognized by:

Europe - European Union, Central Commission for Navigation on the Rhine, UNECE, and the Danube Commission.

North America – US Army Corps of Engineers

Russian Federation - Russian Ministry of Transport

South America – Directorate of Hydrography and Navigation of the Brazilian Navy (DHN)

East Asia - The Ministry of Transport of the Peoples Republic of China, and the Republic of Korea Hydrographic and Oceanographic Administration (KHOA)

On 14 April 2009, IEHG became recognized as a Non-governmental International Organization (NGIO) of IHO. IEHG supports, advises and provides input to IHO regarding Inland ENC matters. Specifically, IEHG attends:

- Hydrographic Services and Standards Committee (HSSC)
- Transfer Standard Maintenance and Application Development (TSMAD) WG

Composition, Organization, and Membership

a. Composition - IEHG is a combined government/non-government technical group that works towards the development of international standards meant to facilitate the implementation of inland electronic charting and navigation, worldwide.

b. Regions – IEHG regions are comprised of countries within a continent (e.g., South America) or a recognized social-economic region (e.g., Europe, Russian Federation, East Asia).

c. Organization – By simple majority vote, chairpersons, vice-chairs and technical coordinators are elected.

1) Chair – Two persons (co-chairs) each from a different region. Only representatives of waterway authorities can become chairpersons.

2) One vice-chair from each region which is not already a chair.

3) Technical Coordinators - One technical coordinator for each region.

4) Core Group – The two Co-Chairs, the Vice-Chairs and Technical Coordinators.

d. Membership

All the members of IEHG should have current expertise in the field of Inland ENCs.

1) Participants – Anyone who is involved in the production of Inland ENCs or the production of Inland ENC applications, and representatives of user groups can participate in IEHG, make proposals and take part in the discussions.

2) Members - Representatives of competent authorities involved in the provision of Inland ENCs are entitled to become members. If proposed by a competent authority, membership can also include expert contributors, such as representatives of:

- International governmental organizations in the area of inland navigation and members of the working groups of these organizations that are dealing with Inland ENCs
- Inland navigation user groups
- Private companies that are producing Inland ENCs or applications for Inland ENCs.

As of September 2010, membership and/or participation in the work of IEHG includes:

- 29 Members (government authorities)
- over 50 Participants
- 9 International Organizations

Efforts are being made to encourage more governments from South America and East Asia to participate.

Current Activities and New Procedures

2010 Annual Meeting

The 8th Meeting of IEHG was held on 28-30 September 2010 at Transas, St. Petersburg, Russia. Twenty persons attended including representatives from each of the five major regions (Europe, Russia, North and South America, Asia). Key topics for discussion included updates on IENC activities in the various regions, review and acceptance of change requests, discussion of IENC quality standards, status of IHO S-100, S-99 and S-101 development, and IEHG participation in S-100 Registry.

Alignment with new IHO S-100, S-99 and S-101

The Inland ENC domain within the S-100 registry has been brought up-to-date. IEHG8 reviewed the draft version of S-99 and agreed that some minor editorial changes could be made that better reflect the relationship of recognised international organisations (such as IEHG) in the operation of the S-100 GI Registry". In reality, most the internal procedures of IEHG are already in line with S-99. If necessary, they will be further amended to be fully-compliant when S-99 becomes published. IEHG continues to follow the development of S-101 and intends to align the Product Specification for Inland ENCs with the new Product Specification for 'maritime' ENCs when it becomes effective. IEHG will also follow the developments of the Portrayal Register, and intends to establish an Inland ENC Portrayal domain once the final specifications become available.

Change Request

At IEHG8, over 30 Change Requests were reviewed, most of which were adopted. The adopted changes will go into effect in February 2011.

Effective Dates of IENC Standards

The following table provides a summary of editions and version numbers and effective dates of the various IENC standards.

Feature Catalogue & Product Spec	Date effective	Encoding Guide	Date effective	IENC Validation Checks	Date effective
2.0		1.0	Oct 2005		
	---	1.1	Oct 2006		
	---	1.2	Dec 2006		
2.1		1.3	Feb 2008		
	---	1.3.1	May 2008	2.1	June 2010
2.2	Feb 2010	2.2.0	Feb 2010		
2.3	[Feb 2011]	2.3	[Feb 2011]	2.3	[Jun 2011]
3.0 (to be aligned with S-100 and S-101)	[2013]				

Quality Standards

IEHG8 decided to update the version 2.1 of the Recommended Validation Checks for Inland ENCs based on edition 4.2 of S-58 and the adopted Change Requests for Inland ENCs.

IEHG continues to work on:

- Guidance on determining what constitutes "minimum content" (to be included in the IENC Encoding Guide)
- Minimum accuracy requirements
- Accuracy information content
- Verification of completeness

Inland ENC Website

All Inland ENC publications and functions are hosted at a consolidated Inland ENC site:

[<http://ienc.openecdis.org>].

Key publications include:

- Inland ECDIS Standard, Ed. 2.0/2.1 (16 May 2008)
- IENC Product Specification, Ed. 2.1/2.2(February 2010)
- Feature Catalogue, Ed. 2.1/2.2(February2010)
- IENC Encoding Guide, Ed. 1.3.1/2.2(February 2010)
- IENC Presentation Library, Ed. 2.1/2.2
- Recommended Validation Checks for Inland ENCs, Ed. 2.1 (June 2010)

The site also contains:

- Information about the work of the IEHG (Terms of Reference, Meeting Minutes, presentations, etc.)
- Papers related to Inland ENC matters and links to authorities who are producing Inland ENCs and companies who are providing Inland ENC applications.

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Action Required of HSSC

HSSC2 is invited to:

- Note the activities related to Inland ENC standards development and implementation.
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