

## IHO TSMAD - IALA Liaison Meeting – Record v4

Taunton, UK 4<sup>th</sup>-6<sup>th</sup> May 2011

Attendees;

ID	Name	Representing
BG	Barrie Greenslade	IHO - TSMAD Chair
BC	Bill Cairns	US Coast Guard; Chair IALA e-NAV Committee
JHO	Jan-Hendrik Oltmann	IALA e-Nav WG5 (Architecture); Chair + German Federal Waterways and Shipping Administration
MB	Michael Bergmann	Jeppesen
RH	Rene Hogendoorn	HITT Traffic
RL	Robert Lewald	U.S. Coast Guard
TR	Tom Richardson	TSMAD
TP	Tony Pharaoh	International Hydrographic Bureau
AN	Andy Norris	Nautical Institute
DA	David Acland	IHO - SNPWG Chair
HP	Hugh Philips	UKHO
JP	Jonathan Pritchard	IHO DPSWG Chair
AK	Andreas Kleuser	Signalis

Comments incorporated from AN, BC, MB, JHO

### Introduction

Following meetings between IALA working groups and IHO in Monaco and Brussels during 2010/2011 a liaison meeting was held at the UKHO in Taunton from the 4<sup>th</sup>-6<sup>th</sup> of May 2011. These minutes are not meant to be formal or complete and exacting, they try to capture key discussions, agreements and concepts as a reference for moving forward.

### Day 1

BG – Introduced the meeting and invited everyone to introduce themselves. He stated that the goal of the meeting is to identify how IHO/IALA can work together using a common data standard. This meeting should be a ‘casual working meeting’ to move forward our mutual interests.

TP – Proposed that DA give a briefing on the work of SNPWG and the development of digital NPUBS. This was accepted.

### S-100

BG – Introduced S-100 by beginning with the history of S-57 and explaining the limitations of an inflexible standard which is closely tied to an encoding and which contains a single catalogue of features and attributes. He explained that this presented big issues for OEMs producing systems and users

upgrading their hardware. Key message is that S-100 is extensible so it can change to account for new requirements and should be thought of as the building blocks for S-100 products.

S-100 Presentation can be found on the IHO website .

JHO – Made the point that references are key and the GI Registry forms, the fundamental element of S-100 and that the fully operational IHO GII Registry (as based on S-100, S-99 etc.) is the single most important asset that IHO contributes to the development to the potential IMO Common Maritime Data Structure (CMDs) as part of E-Navigation, as seen from the outside of IHO. He acknowledged that the IHO S-100, S-99, and S-10x as being international standards documents are the foundation of the IHO GII Registry and are thus central to IHO's work. He suggested that a set of unique identifiers are required to manage registry items. There should be a specific unique identifier attached to each kind of entity defined in the IHO GI Registry.

MB – Suggested management of proposals could be improved by adding search functionality to identify existing similar items.

AN – Asked if S-100 could support non geographic data. The group agreed that it could.

JHO – A key question is whether the S-100 Product notion fits the IALA model. For IALA the GI Registry is key. To what extent 'products' as such will be defined specifically at IALA, needs to await the outcome of IALA domestic policy making.

***The group came to agreement that the scope of IHO GI Registry (based on S-100) should be defined as the maritime domain as Hydrography may be too restrictive given its wider use.***

***A wide ranging discussion ensued mainly centred around the need for flexible type approval in order to allow innovation. This was based on the realisation that ECDIS (V.2.; based on IMO CMDs and thereby IHO GI Registry), would need new type approval. The group generally agreed that a critical mass was building between IHO, IALA and other organisations which would force IMO to address type approval and allow for innovation. It was mentioned that this could involve Performance Standards defining more of the 'what' and less of the how which could be left to IEC or other standards.***

Note from JHO for further discussion based on the above notes:

While I understand the intended meaning of "S-100 ECDIS" (as opposed to "S-57 ECDIS") this term may give rise to misunderstandings: From a IMO functional point of view it is still the ECDIS, although - internally (!) - it works much (!) improved and based on a much better data structure, which will be the IMO CMDs, eventually, using IHO GI Registry (based on S-100) and a much improved update scheme etc.. Still, it is an ECDIS from IMO's functional point of view, although it might be called "ECDIS (V.2)", or something, and we

certainly wish to appropriate the notions associated with ECDIS at IMO to this “ECDIS (V.2)”, too, I guess. The name should make the programme statement, as was also Andy’s point. Hence, I suggest to strive for the precise term of this new beast, and introduce from the outset only the one term, which really conveys that programme notion.

JHO – Proposed that the use of IHO GI Registry (based on S-100) as the core of the proposed Common Maritime Data Structure (CMDS) would need to be proposed to IMO and clarify that its scope is the maritime domain and not just Hydrography.

***Agreement that there is a need to report that in terms of a Common Maritime Data Structure the IHO GI Registry (based on S-100) should provide the baseline or foundation.***

AN – Noted that S-100 will have to have the flexibility to support this but as it already exists it gives E-navigation some direction. (Something to point to)

#### S-100 Maintenance

BG – Explained that S-100 ‘products’ reference a version of S-100 therefore products can still be valid if a new version of S-100 is produced. He outlined the versioning process that would apply to S-100 and S-10x products.

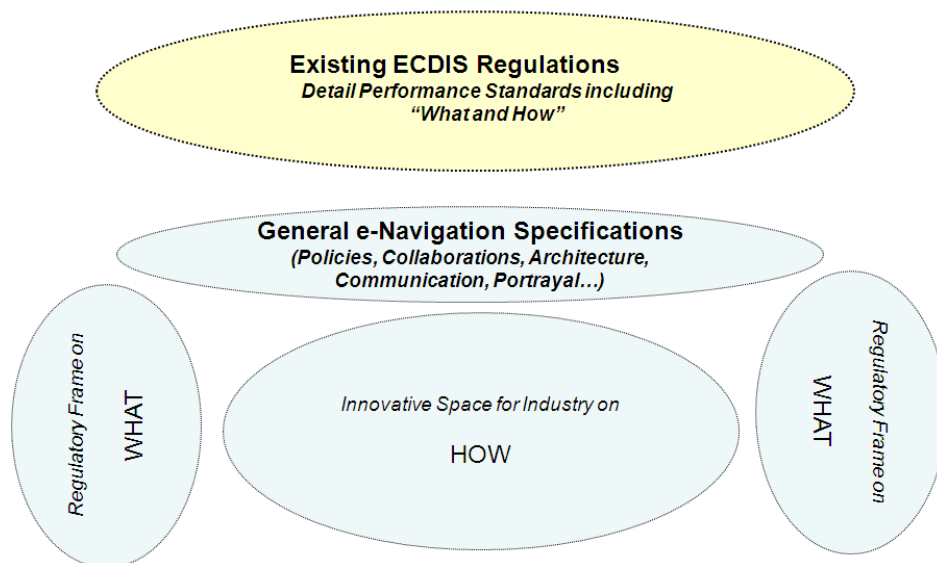
Key concept with S-100 products is the updating of Feature and Portrayal Catalogues. S-101 should improve display so fewer symbols and more informative symbology. It was asked whether information types display as under current plans for S-101 they do not. But this can be defined in the Portrayal Catalogue for the specific product.

***It was clear that a strategy still needs to be defined as to how the transition from S-57 ECDIS to S-100 ECDIS will be achieved. The performance standard is the main challenge to be overcome.***

***Discussion moved on to the concept of a future e-Navigation platform as discussed in the paper from AN.***

***It is clear that a new form of type approval is required for a ‘dynamic’ product. Testing the processes and not just what it currently does with a specific set of test data.***

The following diagram from CIRM 4-2011 demonstrates the move from the current model to a future regulatory framework which separates the what from the how:



***There will be a separation between mandated ‘services’ and optional ‘services’ provided at a cost to users. (from the VTS perspective)***

***A proposal from IALA, IHO, ICS and CIRM to IMO could be a starting point.***

AN – there needs to be functionality which is attractive to Ship-owners. One of these might be MSI on ECDIS (or other displays) which would be a real improvement over the current situation.

***From a VTS perspective the idea of a capability interrogation, such as the “ECDIS passport” notion (TP), is important so that authorities know what a vessel can display/receive. The already available Function Identifier “Capability Interrogation” of the Application Specific Messages (ASM) of the AIS could serve as an intermediate solution.***

#### AN – E-Navigation a Vision and its Practical Implementation

Andy gave a brief précis of his recent paper and explained how the ultimate concept of a networked E-Navigation infrastructure on vessels agreed with the IALA vision laid out by JHO with the concept of a single ‘chassis’ within which different ‘modules’ can be added. Andy explained that a 1<sup>st</sup> step towards this goal might be a single workstation which may not initially be a compulsory fit.

This platform would support the following elements;

- ENC
- DNP
- MSI
- AtoN
- Comm/AIS-NextGen
- PNT
- VTS/Traffic Planning

- Revised GMDSS
- INS Chassis

This initial platform would need to communicate with existing devices but also support E-Nav enabled devices supporting a common message structure. It would support E-Nav 'apps' which may follow existing 'apps' such as ECDIS and RADAR.

One 'app' could be a GIS Display App which would support the display of S-100 products which are not appropriate for front of bridge display during voyage execution.

JHO – What we need is a vision statement and a migration path.

AN – Must not be too revolutionary

MB – Need to consider the integration of data from more than one overlay.

JP – There needs to be specification of an INS like E-Nav framework which supports both official (IMO) and non-IMO apps there should be a performance standard for the platform itself then each official app would have a performance standard for the application only. S-100 needs to cover encryption also to support this.

Such future performance standards must define the what and not the how. The minimum functionality should be clearly defined. It must also be ensured that type approval is effective through international inspection of type approval bodies.

JP – There seems to be violent agreement among the group on this, but there is a need to define the next steps.

AN – Suggested giving a verbal report to the IMO E-nav working group on the outcomes of this meeting.

## Day 2

### S-100 Registry

BG – explained the concepts of the S-100 GII registry and demonstrated the interface of the Feature Concept Dictionary and the proposal process.

Next steps for IALA would be to establish an IALA (or multiple VTS, AtoNs etc) domain for which a Domain Control body member (or members) would be defined.

## S-10x Development

TR – walked through the S-100 ECDIS concept of an updatable ECDIS and explained how products could be updated and new products delivered to systems.

***A discussion ensued around the fact that new products with fundamental new features which are based on a new version of S-100 would not work on an S-100 ECDIS conformant to a previous version. It was added that no such significant changes that cannot be supported by S-100 as is are envisaged. Any that are would likely affect auxiliary displays or other specific systems and not ECDIS.***

***It was added that IMO still needs to deal with the issue of allowing software updates remotely to systems.***

To realise an S-100 ECDIS through IMO the following process would have to be completed;

- Proposal from IMO member states supported by IHO/NGIOs to MSC, which agrees to a new work item.
- MSC would send it to NAV for review
- NAV will send proposal and draft revised performance standard
- At the same time IEC would start developing new technical standards
- NAV will send the IMO performance standards to MSC for approval
- Once approved IEC can release the technical standards

It was noted that S-10x when referring to S-100 derived products building on the IHO GI Registry (based on S-100) is merely a placeholder and for IALA and other users other references, i.e. their respective own international documents, may be more appropriate.

TR – went on to demonstrate the S-10x development process and the use of the Feature Catalogue Builder to construct S-100 compliant XML Feature Catalogues. The creation of new features and attributes in the builder was highlighted and the process of adding elements and then binding attributes to features and values to attributes in the application.

TP – Suggested that importing from an XMI file would support efficient development of products from UML diagrams.

TR- This is a good idea and should be investigated but of course the XMI file will need to be complete and consistent.

## SNPWG Development

DA – Presented the work of the SNPWG group and gave a demonstration of their development wiki for modelling and agreeing new items. It was noted that much of this gives a template for IALA work although many items might come under a new IALA domain.

## Registry – Scratchpad concept

One concept to emerge from various discussions is that for new domains a 'development' Registry in which to develop concepts prior to submission would be useful. Currently TSMAD and SNPWG use Wikis and Google groups for this development however they already have data models in some form. For IALA and others a clear data model may not yet exist for some applications.

***Lengthy discussions around this issue arrived at the idea of the existing registry database allowing for a new item status of development. Upon proposing a new item or amendment users would have the option of creating a new item in the normal way, creating a development item which can be submitted later or copying an existing item into a development version.***

***In addition these development versions could have comments linked which the interface could list allowing groups to collaborate on the development. They would have timestamps to track the changes and submission to the registry.***

MB – proposed the idea of a project which groups proposals for ease of management and administration which would also give an audit trail to a meeting or decision which prompted the submission.

***These development items would only be visible in a separate development domain which is not public facing but could be stored in the same database as other items to avoid the complexity of multiple databases within the registry.***

## IALA use of the IHO GI Registry (based on S-100)

There was a brief discussion about the sorts of items IALA would propose to the registry. It was noted that many of these exist in various IALA recommendations such as AIS message items and the forthcoming IVEF standard. It was highlighted that there may be overlaps and duplications with existing Hydro/Npubs objects which would need to be addressed and some items may need to move domains or be replaced by the authoritative version.

## Outcomes

- There is agreement that the IHO GI Registry (based on S-100) should form the basis for the IMO Common Maritime Data Standard. With its scope being defined as the Maritime domain.
- There is agreement that type approval will need to be addressed to allow for dynamic software systems and there is a need to approach IMO on this as part of a concerted effort.

- There is agreement that to realise E-navigation a single platform which supports various IMO and non-IMO modules is the way forward.
- There is a requirement to add functionality to the IHO GII Registry to support the development of submissions in a non-live environment where items can be discussed by working groups

#### Next Steps

- IHO/IALA should continue cooperation in this area in support of their mutual interests.
- Potential for follow-on meeting in near future. IALA HQ or IHO HQ mentioned in this regard. (JHO and TP are investigating the options)
- Establish an IALA) domain (or multiple domains, e.g., VTS, AtoN, etc) for which a Domain Control body member (or members) would be defined.
- Investigate the potential to develop unique identifiers contained within the IHO GI Registry (S-100) framework.