**S100 Working Group and S-101 Project Team Meeting  
Tokyo, Japan (17-18th March 2016)**

**Minutes**

**Minutes S-101 PT**

Julia Powell (JP) welcomed all to the first S-101 Project Team (PT) meeting.

Jeff Wootton (JW) explained how the base line documents (3.0A and 3.0B) came to be and emphasised that there is still a number of outstanding items. He will work on each change log and main version of DCEG, and archive these each time a new version is made to give a record of change during the development.

**3.0B S-101 DCEG post baseline change log**

JW presented the log of changes, and proposed that all changes in the log be accepted. He further clarified that the changes are primarily based on papers to TSMAD and S-100WG. It was accepted that any items not receiving comments by end of the meeting on Friday would be accepted.

**3.1 Correction to Besom Point Down Definition**

The requested change has already been applied, and the change log will reference this paper for the justification of the change.

**3.2a & b DCEG Issues from Australian hydrographic office**

Document is a result of several issues and proposals captured over time, and are submitted to this meeting to review the validity of each.

1. Buoy special purpose – Request to remove categories 16, 41, 44. – Accepted
2. Coastguard station – Request to add new Boolean attribute to capture if a coastguard station is a maritime rescue and coordination centre (MRCC). – Accepted
3. Coastline – Request to remove the distinction to canal bank, lake shore and river bank from coastline within the S-101 DCEG. No change to the registry – accepted
4. Dam – request to remove ‘hard surface’ as an allowable value for nature of construction for dams, the discussion added ‘unsurfaced’ to be removed – accepted
5. Depth contour – proposing to change encoding recommendation for approximate contours to say that contours derived from inadequate surveys be encoded with quality of sounding: ‘inadequately surveyed’. It was propose to forward this to DQWG for further guidance as they are reviewing the whole list of QUAPOS and QUASOU.
6. Dumping ground – proposing to add a new attribute ‘date disused’. It was agreed that there is a need for an attribute to capture the date the dumping ground stopped being used. An offline discussion will work out the exact form of the attribute.
7. Fairway – proposing to add the least depth value as an allowable quality of sounding attribute for fairways – Agreed.
8. Fishery zone – Proposed to remove status as an allowable attribute. SHOM will review and come back if there are comments. UPDATE: SHOM prefers to keep status as an allowable attribute for Fishery Zone due to a specific agreement with the UK.
9. Floating dock – asking if floating docks can be point shape, and to confirm that the current guidance of depth area, depth area, dredged area or unsurveyed area to be allowable group 1 features under a floating dock. – agreed
10. Fog signal – proposing to add two new attribute values to signal generation, and to add communication channel attribute to fog signals to allow capturing AtoNs that can be activated by the mariner. The discussion highlighted that IEHG has done something similar to what this proposal is trying to achieve. It was therefore agreed that there should be a discussion to harmonize the two if possible.
11. Free port area – proposing to remove the status attribute as an allowable attribute. Proposal was rejected due to concerns over loss of encoding capability.
12. Incineration area – proposal is to remove the feature type from S-101 since there are IMO regulations that prohibit burning of waste on the sea. Accepted.
13. Lights – proposed to remove the unwatched attribute – rejected due to possible national requirements in some areas of the world.
14. Navigational line – proposed to add an attribute of real type to capture the length of a measured distance. And additionally add an enumeration attribute to category of navigation line.
15. Offshore platform – Proposed to remove the value 4 ‘wingless’ from allowable values for offshore platform. Accepted
16. Offshore production area – proposed to add a remark starting that under development areas should be done using offshore production areas etc. Accepted
17. Range systems – proposed to add the attribute maximum permitted draught to the aggregation feature Range System. – Accepted
18. Slope topline – proposed to remove values 3,4 and 7 from the category of slope for logical consistency. Agreed
19. Traffic Separation Scheme. proposed to add the attribute maximum permitted draught to the aggregation feature Range System. – Accepted
20. Two –way route - proposed to add the attribute maximum permitted draught to the aggregation feature Range System. – Accepted
21. Depth range maximum value – asking for confirmation that the current encoding convention for drying depths. It was confirmed
22. Passenger terminal – Proposed that the value 43 is removed from the function attribute. Agreed.

* JW to update the DCEG by end of May in accordance with the Issues list from AHO.

**3.3 Proposed remodelling of restricted areas**

Paper by JW and JP to initiate a discussion of review of the current modelling of restrictions in various feature types. In general there was support for the approach. It was recommended that these changes be discussed with NIPWG so that harmonization efforts can be initiated. It was also commented that landing prohibited should be within the ‘Restricted Area Navigational’ feature.

* JW with further develop the remodelling of restricted areas proposal.
* JP will send the paper on to NIPWG for comment.

**3.4A Attribute for sector length**

Paper by Norwegian Costal Administration, presented by Guttorm Tomren (GT), on how sector lights are presented in ECDIS within Norwegian waters. The core issue was that the paper chart shows the range of the light sector, while ECDIS doesn’t portray this. In paper chart, major sectors are made more prominent than lesser important ones. There is general support within the group in recognizing that this is an issue and that it needs to be fixed. A subgroup (Odd Aage Foere (OF), GT, Hans Engberg (HE) and Miko Hovi (MK)) worked out a proposal on how to S-101 can be amended to cover the issue.

**Report from the S-101 light sector breakout group**

The proposal adds cartographic attributes to better control the portrayal of sectors (lights and radar transponder beacons), and additional guidance in the DCEG for cartographers.

The proposal was discussed with JW and will be added to the DCEG.

* JW to update DCEG reflecting the proposal from the S-101 light sector breakout group

**3.6 S-101 DCEG Issues from Jeppesen**  
Most of the issues that were presented in the paper were accepted. Other items were pointed were agreed that JW would undertake as editorial comments. As part of the record the Adjudicated paper will included.

**3.7 Fairway proposals**

The paper proposed to add a feature type to aggregate fairway features and associations to link related navigation aids. The proposal was accepted.

**3.8 Correction to encoding of features with pointset geometries**

Paper by Robert Greer (RG) proposing that the DCEG will be harmonized with how soundings are encoded, as multipoint/pointset. Proposal was approved.

* JW to update the DCEG to reflect that soundings are encoded as multipoints

**4.1 Status Report of the product specification**

JP Gave an update on the status of S-101. Included in this update was a timeline projection, but it was emphasised by JP that the dates are tentative and not guaranteed.

JP reported that Caris has generated a first draft portrayal catalogue using S-52 as a start. This work is still in need of harmonizing with the new items in S-101, but it is suffering from few available resources.

S-101 main part has been out for a new review, and comments were received from Australia and Japan, which were mainly editorial in nature.

* JP will update the S-101 draft in response review comments.

DCEG has not been updated since March 2014, nor were there any changes to the 8211 Annex.

A revised feature catalogue is being progressed, but processes are still being worked out. A later paper proposing the use of super types might ease the level of effort needed with each revision.

S-101 Value Added roadmap has been out for some time. No objections to issue the current draft as a final version, which will be maintained by S-100WG.

Under the list of still to do items is the S-101 implementation guidance. It was proposed to start fresh with this item. Hannu Peiponen (HP) recommended that at least a bullet point list should be developed and maintained to ensure all items from the current version, which is inspired by S-52, are considered. It was agreed to rename the current document to an S-52 check list to cover the request from HP.

* JP to rename implementation guidance document and add to basecamp

S-101 Validation Checks remains a to-do-item. Recent development to S-58, will delay this item till such a time as S-58 6.0.0 is finalized. Tom Richardson (TR) proposed that there could be a generic set of 8211 specific tests that could be added to S-100 for all ISO 8211 based product specifications. Similarly there could be geometry tests that are generic, and could be added to the geometry section. The proposal was considered a very valid suggestion, but resources remain an issue.

* JP will add 8211 tests as a to do item for S-100

JP reported on the status of the Risk Register focusing on the highlights. The work on the risk to S-101 validation has increased to high from medium due to lack resource. Risk on the portrayal catalogue has dropped from high to low following the draft provided from Caris. Major issues remain the status of the Registry and being unable to the register any features, attributes, etc. The delays stems mainly from the need to completely rebuild the Registry.

The overall timeline of the S-101 project has been revised due the lack of resources. The target is now 3 years from 2016 for a complete first draft.

JP reported that the next steps for S-101 are:

* Register approved features/attributes/enumerates
* Build an updated feature catalogue
* Build a complete portrayal catalogue, the NCWG has been tasked by HSSC to assist with the portrayal/symbology of new features.
* Develop the validation checks
* Develop the implementation guidance

Yong Baek (YB) pointed out that the latest FC is based on the 2014 DCEG, but that it was based on test databases. JP responded that the current official Registry doesn’t have enough content to generate new FC. The plan is to register the items in a proposed state, allowing the FC builder to use invalid items to generate a new draft. The proposed items cannot be processed into valid state till the registry manager system is up and running at the IHB.

YB pointed out that phase 3 of the value added road map needs to be updated. JP will review, and make the roadmap public.

JP will submit a paper to the upcoming NCWG asking for the working group to start drafting the symbols needed for S-101. SPAWAR has kindly offered to develop the SVG symbols once NCWG has completed the symbol specifications.

* JP to submit paper to NCWG2 asking that work on S-101 symbology is started.

**4.2 S-101 Data Coverage Rules**

JP presenting this paper, which is seeking to firm up the S-101 data coverage rules by reviewing the existing rules and confirming these. The paper proposes to reformat the S-101 rules into a bullet list of rules for better readability. The proposed list was modified by comments from the meeting. JP will also include pictures of the rules to improve clarity. Along with the paper was a list of recommendations to further improve the understanding of the rules. These were accepted.

* JP and JW to draft the complete Data Coverage rules list and harmonize DCEG with S-101 main part.

**4.3 S-101 FC .8 Discrepancies**

Eivind Mong (EM) presented a list of proposed amendments to the FC, DCEG or Register following a review that Jeppesen had done of the three. There was general agreement to the whole list, and the revisions will be done by the appropriate teams.

* JP will coordinate the register and FC items, JW will coordinate the DCEG items, YB will coordinate the FC items from the Jeppesen list of discrepancies.

**5.4 Status of the United States S-100 Testbed software**

Report from Robert Greer (RG) on the SPAWAR activities with developing the S-101 viewer. SPAWAR has posted a copy of the viewer on the S-101 basecamp and encourage everyone to download and test. In the package there is a comprehensive user manual to assist with the installation and use. Mikan Stamenkovich (MS) demonstrated the software. The software includes some reporting on the data loading and performance. SPAWAR requested any feedback on the software to help them with the development and bug testing. The presentation received gratitude from the working group chair for the impressive work by SPAWAR.

* S100WG to review the SPAWAR software and comment to SPAWAR as appropriate.

**4.4 Concept of a DCEG editor**

YB reporting on the work by KHOA to develop a DCEG Editor as per the DCEG Editor Prototype development that KHOA proposed at TSMAD29. Junshik Lee (JL) presented the current status of the project. JL highlighted the number of inconsistencies that have been reported between DCEG and FC , and recommended that this justifies the need for the DCEG editor. Further, he reported that there are many similarities and links between the DCEG and the FC, and that it is therefore possible to link the two using databases. This will enable a process to maintain the two and to validate that the two documents remain consistent with each other. The DCEG editor can export the content in HTML format, which can be loaded in Microsoft Word or other word processing tools for further editing. Dr. Sewoong Oh (SO) demonstrated the prototype software and showed how the DCEG content can be constructed from the feature catalogue and output HTML. The work was greatly appreciated by the working group, and representatives from other working groups dealing with S-100 based product specifications expressed interest in using the tool.

* JL to progress development of the tool and report back at next meeting.

**4.5 Super types for S-101**

EM presented a proposal to utilize super types within S-101. The concept was considered to be good, but its implementation depends on resources. KHOA will investigate with the FC builder team to see if this is possible.

* JL and YB to review proposal and report back.

**5.0 Convertor report**

Tom DuPuyt (TP) reported on the latest development of the S-57 to S-101 convertor. He pointed out that the convertor uses a 0.8.9 version of the FC, which is an ESRI extension to the 0.8.8 version that include quality metadata features, that was needed to test conversion of M\_QUAL and CATZOC. TP further reported on issues found during testing, where very complex bridges result in unexpected results. There is still a need to review if there are ways to circumvent these issues. The latest version has implemented M\_CSCL. Adding DOCARE and LOKBSN as group 1 has been dropped as a requirement, due to the need to generate new geometry if this requirement is implemented due to cutting other group 1 features. New functions have been added to support CATALOG.031, updated log files and updated data dictionary for S-100 dump utility. Furthermore and version control has been implemented to ensure the convertor is compatible with the feature catalogue being used. TP reported that a number of stakeholders have provided input and feedback to his team.

JP thanked ESRI for the report and their continued efforts to the development. She also requested IC-ENC to contribute to the development of guidelines for converting data.

* Liz Hahessy (LH) to draft guidelines for converting S-57 data to S-101 data

**5.2 Test datasets**

Ed Kuwalek (EK) reporting on the task that IIC had from NOAA to develop S-101 test datasets to test the various S-101 data loading scenarios, dataset metadata and S-101 exchange catalogues. He informed the group on the process to develop the datasets, which include some significantly intense manual efforts due to lack of S-101 editing tools. This was specifically relevant for the metadata creation. EK reported on how the implemented the exchange set catalogue model in the test dataset. Holger Bothein (HB) pointed out that the IIC implementation was not the only way to do it, and that efforts should be undertaken by the data producers to minimize the duplication of support files. EK reported on the XML schemas that were developed as part of the exercise, and recommended that the IHB publish these to establish the name spaces. He also reported that a number of inconsistencies were found between S-100 2.0.0 and S-101 (June 2015). These will be addressed later in the S-100 part of the meeting. He invited everyone to review, test and provide feedback on the test datasets.

* S-100WG to review S-101 test datasets and comment as appropriate

YB pointed out that NIPWG would meet the following week, where the nautical product catalogue would be a discussion item.

There were comments from HB and KI asking if the catalogue metadata that have been developed can be extended to support the additional data delivery requirements as part of the data encryption and protection. EK responded that the development is evolutionary and that this initial set of test data were merely the first increment in this process. Johnatan Prichard (JoP) suggested that it was important that the artifacts of the past are not uncritically carried forward into the S-100 exchange set.

**5.3 More S-101 Test Data Sets**

SO reported on a joint KHOA/NOAA project working on development of more S-101 test data. The test data consist of datasets developed from S-64 test datasets, and native S-101 datasets. KHOA has developed the Simple S-101 Editor software that is capable to edit S-101 datasets, and thus output native S-101 datasets. SPAWAR has tested the datasets, and provided feedback, which KHOA has used to update the datasets. This remains an iterative process aimed at providing the best possible test data. SO demonstrated the software and its capabilities. KOHA will put an updated version of the test datasets on Basecamp for the stakeholders to test and comment on.

JP thanked KHOA for the efforts and the fine work. She also stated that there will be an iterative process in this development.

* KHOA to put their S-101 test datasets on basecamp for review and report progress to the working group.

**5.5 Summary of outstanding S-101/S-100 Test bed issues**

MS reporting on issues discovered during the development of the S-101 viewer. He highlighted that masked edges are not yet implemented in the portrayal catalogue, input schema doesn’t allow soundings as multipoint, and that there would be process improvements by moving to XSLT 2.0.

JP thanked SPAWAR for their valuable contribution to the development of S-101. She underlined that some of the issues found by SPAWAR might be addressed when the registry is up and running. Further discussions highlighted that other issues raised might be resolved when the conditional symbology procedures (CSP) are developed. Hugh Astle (HA) pointed out that in previous meeting (Hamburg) there was a decision that ECDIS OEM would hardcode some of the functions that are covered by the CSPs, and that the remainders are likely covered by ones already converted from S-52 CSPs.

* SPAWAR review what CSPs are available and report back what is missing.

There was a discussion on the possibility to move to XSLT 2.0, but concerns over the availability of open source processors that support XSLT 2.0.

**S-102 High Definition Bathymetry Project Team Minutes**

**7.1A S-102 Update**

Dave Brazier (DB) reported on the status of the S-102 development and the decisions made at the TSMAD29 meeting. Since the TSMAD29 meeting, several updates have been added to the specification, including parts addressing file maintenance, portrayal, and naming conventions. A breakout meeting will be held to work out the road ahead for S-102.

* DB to use feedback to progress S-102 and report back to S-100WG

**7.1B Experience with S-102**

JP gave a report on behalf of NHS. The report highlight issues discovered during tests with S-102. The test was made using version 1 of S-102. The biggest issue reported was the 10MB dataset limit, which proved insufficient as it would result in many small tiles. The test bed includes an API for auto generation of depth contours. Comments from the working group indicate that the 5 meter resolution was sufficient for regular navigation and that therefore the file size limit of 10MB should be sufficient. It was however noted that other uses can require higher resolution, and therefore the limit should be a recommendation. OF reported that the testdata is available, and that he would provide this to JP to be put on Basecamp.

* OF to provide JP with NHS S-102 testdata
* JP to put NHS testdata on Basecamp

**S-100WG1 Minutes**

JP opened the first S-100WG meeting by thanking the host, JHOD, for the great venue and welcomed the delegates to participate in the discussions.

**3B Review of S-100WG actions**

A review of the status of inherited actions from TSMAD and outstanding S-100WG actions was conducted. JP captured action updates.

**4A Review of HSSC actions for S-100WG**

JP reported on the status of the actions placed on S-100WG by HSSC. Updated HSSC Actions are an annex to this report.

**5.1A NIPWG report**

EM reported from the chair of NIPWG that the working group is involved in testing of the registry. He also reported that the working group has prepared several papers for consideration of the S-100WG and that efforts are underway to coordinate data modelling and DCEG content between S-101 and S-122. Additionally the report included an update on the work of NIPWG with developing product specifications.

**5.2A NCWG**

The report was given during ENCWG1.

**5.5A DPSWG report**

JoP gave an update to the recent development in DPSWG activities. He reported that the current version of S-63 is somewhat mixed up, and that during the DPSWG meeting earlier in the week where a clearer organization of S-63 content was drafted, and significant parts are proposed to be added to S-100. He reported that the future work will focus on how to improve the use of the service files/elements, as there are currently restrictions on how services, such as when his UKHO service sends out updates to a few cells, and the requirement in S-63 force release of the whole update set for 11000+ cells.

* JP to coordinate with DPSWG on starting the development of new parts in S-100 to carry data protection mechanisms.

It was pointed out that there are parallel activities within IALA that are looking on similar mechanisms to what S-63 provide, and that DPSWG and S-100WG should not develop these in isolation. Particularly mentioned was the maritime cloud concept. JoP responded that this is under ongoing consideration. JP stated that IALA is asked to review the input to S-100 and provide comments as needed.

**6.1 IALA Report**

EM presented the IALA report highlighting the activities that are related to S-100 development. JP thanked IALA for the report.

**6.2A ISO report**

Anthony Pharaoh (AP) reported on the IHB’s activities with ISO.

**6.3A IEC report**

Hannu Peiponen (HP) reported on IEC activities as the chair of IEC TC80. He reported that at present there are low activities within TC80, aside from a work package having been stood up for CMDS for e-Navigation.

**6.4A S-412 report**

César Reinert Bulhões de Morais (CM) presented the current status of the development of S-412 weather overlay. JP invited the participation of expert contributors in the testing of the development by contacting RM to join the mailing list of the project.

**6.5A DGIWG report**

TR reported on the DGIWG activities and their relevant activities. Noted that DGIWG has done work on web mapping services, and that outcomes of this work have been adopted as OGC best practices.

**6.6A OGP report**

AP reported that no activates with the group has taken place since the last TSMAD meeting.

**6.7A GMWG report**

TR reported on the work of GMWG and their AML development. He indicated as soon as the AML domain is accepted and created, the group is looking to start submitting items to the GI register.

**6.8A DUALOS report**

AP reported that no activates with the group has taken place since the last TSMAD meeting.

**6.9A IMO report**

AP reported on IHB activities with regards to the IHO-IMO Modelling Harmonization Working Group. He reported that IHB is in the process of setting up the working group with IMO. He suggested that at least one S-100WG member participate in the working group.

**7.2 and 7.3 project teams on S-121 Maritime Limits and Boundaries, and Under Keel Clearance Management**

AP reported that due to the restructuring of the HSSC working groups two project teams have been stood up. S-100WG was asked to confirm the appointments to chair and vice-chair of the two project teams. The working group confirmed the appointments. The Terms of References for the S-121 PT was reviewed and confirmed by the working group.

JP invited expert contributors to the project teams.

Konstantin Ivanov (KI), HP, EM volunteered to join the UKCM project team as expert contributors.

* JP to develop the PT work plans
* JP to write the chairs of the PTs to inform them of the outcomes of S-100WG1

**8.0 S-100 UML Development Master (.EAP)**

JP reported on the availability of the S-100 model package, including a pdf package for those that don’t have Enterprise Architect.

**8.1 S100 WG Letter 5/2015 Results**

JP reporting on the outcomes of the working group letter 5 of 2015. Several comments were received, of these some were returned with request for papers with change requests. Two items did not receive consensus, and these will be discussed further during the meeting. Papers 8.2, 8.3 and 8.7 were accepted as is, and no further discussions were needed on these.

* JP to add outcomes from papers 8.2, 8.3 and 8.7 to S-100

**8.4 Part 9 – SVG Format (WG letter vote)**

Comments received asked for clarification if the paper was normative or informative; it was agreed make the profile normative. Comments from France and 2J requested further examples, to which JP and Hugh Astle (HA) will resolve.

* JP and HA to add more examples to the SVG format part

**8.5 Namespaces**

The paper includes a request for improvements to namespaces within S-100. However, JP pointed out that the request was unclear and the uncertainty makes it difficult to know what needs improvements. Therefore the requests were rejected with an invitation to Portugal to submit an improved proposal.

* JP to communicate with Portugal asking for further clarifications on what improvements are needed to namespaces within S-100.

**8.6 HDF encoding**

It was reported that comments received will be reviewed by proposers and those who submitted comments to the proposed S-100 Part 10c.

* JP to sort resolution of the comments, and add HDF as an extension to S-100.

**8.8 Part 10A – 8211 SEGH (WG Letter Vote)**

HB presented the changes he proposed to S-100 10A aiming at some optimizations. However, there are ongoing discussions between HB and Raphael Malyankar (RM) on these items, and it was therefore accepted to allow these discussions to finalize, and a report to the working group on the outcome will be generated when completed.

* HB and RM will resolve issues related to the proposed 8211 optimizations in email exchange and report to JP.
* JP to issue a working group letter to inform the WG of the outcome of the 8211 optimizations discussions and add result to S-100.

**8.9 Dataset attributes**

HB presented his change proposal for adding a binding in the FC model to allow datasets to have attributes. EM raised a concern over the method proposed, as it would deviate from the base ISO method. A subgroup was formed to work out the problem, and find a means to achieve the need. The group came to a compromise with having the metadata external to the dataset and thus remain more in line with the SIO methods.

* HB will make modifications to S-100 Part 10A, to remove the attribute field from the dataset identification field.

**8.12 Information binding and noGeometry primitive type**

EM presented a proposal to add an optional binding of roles to information binding, and to add noGeometry primitive type. HB suggested that the GFM doesn’t allow for roles on the information bindings and therefore the proposal should not be accepted. Agreement was not reached, and it was agreed that HB and RM would continue the discussion over e-mail and report resolution to JP.

* HB and RM to review issues over information binding and resubmit.

The proposal to add noGeometry primitive was accepted.

* JP add the no geometry proposal into S-100.

In the discussions HB pointed out that arcbycenterpoint and circlebycenterpoint should not be primitives, furthermore, curve should be changed to orientablecurve and surface to orientablesurface.

* HB to submit change proposal.

**8.10 Part 9 Editorial Issues**

JP presented editorial comments from the chair of NIPWG to part 9 of S-100. The various comments were accepted.

* JP add 8.10 proposals to S-100.

**8.11 Part 4A Metadata Exchange Set**

JP presented a proposal on how to modify the metadata exchange set for S-100. The reason for the proposal is requirements to always include the catalogues. The proposal was accepted in principle, and a redline of Part 4 will be drafted. There was commented from Jeppesen, which specifically pointed out that a new version of ISO 19115-3 is in the progress of being released, and that there are types within it that can be used instead of some of the S100\_ types, which will result in a closer alignment with ISO. It was agreed that during the redline review changes stemming from ISO 19115 can be proposed.

* JP to produce a redline of Part 4A and redistribute among WG.
* EM to review redline and suggest improvements from the latest ISO 19115 version.

**8.14 Part 2B Portrayal Register**

JP reported on the progress on developing a portrayal register. HA described the draft registry model. HB pointed out some inconsistencies and potential improvements to the model as presented.

* JP will coordinate and progress the work towards a full proposal.
  1. **art 4A PDF as a support file format**

EM presented the proposal on behalf of NIPWG to include PDF as a support file format. There were some concerns over the potential to include code in the PDF, and for night mode viewing. The proposal was approved with an added comment that there shall be a remark added to S-100 that there must be care taken when using PDF in a system, to ensure that night mode considerations are taken, and considerations for very large PDF files be avoided.

* JW and JP developing the caution note that goes with the format

**8.15 Part 9 Update to Point Drawing Instruction (Rev1)**

RG presented a proposal from SPAWAR to fix issues with the portrayal of soundings. HB raised some concerns over the SPAWAR use of identifications. It was agreed that SPAWAR and HB would discuss the issue overnight and come back with a proposal. HB, HA and MS did not reach agreement on how to resolve the portrayal sounding. HB and HA had suggested that augmented geometry could be used to resolve the issue, however SPAWAR did not agree stating that is was a misuse of the stated intent of augmented geometry, and using it in the proposed way would be an unappropriated work around. Further discussions are required to find a path forward.

**8.18 Part 8 Alignment with revised ISO models**

Lynn Patterson (LP) presented comments from Canada regarding the part 8 of S-100. LP reported that when Part 8 was initially created, it used unpublished ISO standards as a basis. Comments were received that the changes need greater review, but overall the submission was quite welcomed. Redline was accepted to go into the S-100 draft.

* JP to incorporate the decisions of the working group into draft S-100 3.0.0 for review.

**S-100 Proposal summary**

JP presented a timeline for preparing S-100 3.0.0 with an aim to have it ready for approval at HSSC8. The proposed timeline was accepted by the meeting.

**9.1A Update on the S-100 Registry**

YB reported on the status of the redevelopment of the S-100 Registry by KHOA. KHOA has worked with NOAA to establish a clone server to test the new registry. Several improvements has been done to bring the Registry in line with S-100 2.0.0 and to support updated submission processes according with S-99. Moreover a new user interface has been established. Tests have been undertaken to validate the submission process with help from S-100WG, NIPWG and IEHG. YB reported that future plans involve completing the tests and adding the additional registers. IALA and IEHG representatives expressed appreciation for the work and look forward to completion of the work. IEHG representative sated they are happy to help with the testing. YB requested that relevant experts join the development of the registry, such as the portrayal register. Interested experts can contact YB at [ybaek@korea.kr](mailto:ybaek@korea.kr).

**9.1B S-100 Feature Catalogue Builder**

YB reported on the KHOA development of the S-100 Feature Catalogue Builder (FCB). A new version of the FCB has been developed, and comments have been submitted from IEHG. Comments revealed some connectivity issues, due to security limitations at the user’s organization. Updates to the FC schema resulted in the existing IENC FC not loading. Moreover some UI issues were reported. To address the connectivity issues, the FCB was enhanced with the ability to have a local version of the database along with update procedures for the local version of the DB. This allows users to download the FCD and work locally to create feature catalogue bindings using the FCD elements. YB highlighted the need to discuss, within S-100WG, content of the local version of the database, such as should both valid and invalid FCD elements be available. He also asked who should be able to submit FC to the FC DB, however, these were not directly answered at this time. Comments received were very positive to the development. Denise LeDue (DL) requested that there be access to the proposed FCD items so that IEHG can create test FC.

**9.2A S-100 Portrayal Catalogue Builder**

JP reported on the status of the Portrayal Catalogue Builder. She reported that the builder still needed a complete test. Some missing functionalities are still needed and she expect that by mid 2016 a set of requirements of the outstanding items should be complete.

**10.1A Input into the next IHO Strategic Plan**

JP reported that the next International Hydrographic Conference is scheduled for April 2017, and that the working group chairs have been requested to provide input to the IHO Strategic Plan. She suggested that due to the increasing use and importance of S-100 in maritime navigation and e-Navigation, S-100 should be mentioned in the IHO Strategic Plan. Moreover, JP share the type of reports that she submits, and to that she asked for input from the working group, to what are the top three of four top priorities of the working group. She asked for input to a survey that will go out in April of 2016, and that the working group participate when the survey is issued.

HP commented that the level of detail in the reports is very high level, furthermore he proposed that S-100WG suggest additions to the IHO Strategic Plan should include that IHB IT infrastructure is up to the challenges of the future, and that S-101 ENC be proposed to IMO as an alternative to S-57 ENC.

**10.2A Report S-100 Interoperability Specification development**

EK reporting on the development of an interoperability specification that is being drafted, with NOAA funding, by IIC and Jeppesen. He underlined that the work is very early in its development, and that three phases are planned; interoperability analysis matrix report, 2 and 3. The interoperability analysis matrix report aims at identifying issues between data layers and how to provide rules to ensure systems act in a predictable manner when different products are mixed on the screen. The work includes a vision of future navigation systems having predefined operation modes that includes what data is needed, and how different products can be loaded in these modes. Comments received asked if the report considered if during the loading of additional information the ECDIS stops being an ECDIS. HP pointed out that recent discussions within IMO NCSR3 indicate that the ECDIS modes might be changed or removed in the future, and therefore the report should consider this. JW stated that he appreciate that the work has started, but strongly cautioned against any data replacement functions, stating that it is the hydrographic office’s role to determine what is needed for safe navigation. KI supported the comments from HP, and stated that the ECDIS OEMs present have experience with interoperability, and that they should contribute to this work.

**10.2B Extending S-100 to Non-navigational applications**

LP presented a request from the team behind S-121 Maritime Boundaries, asking to add intrinsic type to every feature in the FCD, additionally the request context for features and their definitions. JW voiced concern over the development of the S-121 product specification and how it seems to have done a scope creep that puts it outside the original intent of the development. Concerns were also raised over apparent overlaps between S-121 features definitions and the existing definitions. Suggestions were made that these two need to be harmonized.

EM pointed out that NIPWG has a similar request with handing context, and cited the example of the status attribute which is means different things depending on the context.

The addition of intrinsic type was not supported, and it was suggest that rather the S-121PT include an attribute in the S-121 feature catalogue.

* JP to inform Canada of the results

**S-100 10.3B Supporting the ISO 19152 Land Domain Administrative Model in a Marine Environment**

LP presented a request to add some of the land domain model into S-100 to allow the S-121 development team to reuse some of the land model concepts. Primarily needed are the rights, restrictions and responsibilities parts of the LDAM. The proposal justified the request on the basis that a common legal structure is needed for land and sea claims. Comments received were not in favour of the addition of the LDAM, and it was suggested that the S-121PT rather use the concepts within S-100.

JW pointed out that the justification at HSSC for standing up S-121PT was only for support of UNCLOS, and that the requests for adding the LDAM, would be a significant scope creep. JoP agreed with the concerns raised by JW, and suggested that the S-121PT push ahead within the scope they have been given and report back with items they cannot do within the S-100 frame work.

* JP to report back to Canada on working group outcomes.

**10.4A & B S-100 Test Bed Update**

JP presented an update on the status of the S-100 testbed. The report gave the status of each phase of the test bed. She reported that the framework has been updated to include data validation and data packaging. TR reported that the DGIWG will use a similar project framework to test their AML development. He also questions why test cases were considered not needed for the convertor, and suggested that as a matter of completeness these should be added.

* TR to propose tests for the convertor

**10.5 S-100 Shorebased ECDIS Definition**

KI reported on the development of an S-100 ECDIS definition as per action he picked up at TSM3. The output includes minimum functionality of a shore based ECDIS with references to IEC 61174 where applicable.

JP suggested that in the interest of time, the proposed definition be added to the ECDIS framework and further discussed in TSM4 later in 2016. This was agreed.

* JP to incorporate the results of the paper into testbed framework.
* TSM4 to discuss and agree on the definition of shorebased ECDIS.

**10.6A Restructuring of the S-100 Registry**

EM presented the paper on behalf on NIPWG. JP responded that the concerns are noted, but asking that NIPWG wait till the current structure is given time to be properly tested. TR suggested that the idea of a common domain could be implemented now. NIPWG is asked to wait 18 months to allow S-100WG to test establish the Registry.

* EM to report outcomes back to NIPWG

**10.7A Approximate Areas for Nautical Information Specifications**

EM presented a paper from NIPWG requested S-100WG input to the development of fuzzy areas. JoP suggested that NIPWG is starting from a wrong assumption, that everything is modellable. HP suggested that NIPWG has the tools needed, and should use them. Such as modelling two zones for the radio service coverage.

* EM to report feedback to NIPWG and suggest that NIPWG try modelling the fuzzy areas using the tools available.

**S-100 10.8A Status of Surface Currents Product Specification**

JP reported on the status of the development of S-111 (surface currents). The chair of the Surface Current Project Team requested input to several questions the project team has following the ongoing development. However, due to time constraints, the working group was unable to properly consider the questions. The chair also requested S-100WG membership review the draft product specification and report to chair of S-100WG by June 2016. An invitation was also issued for additional expert contributors to participate in the development of surface currents.

**10.9A PC Implementation of “TopLevelTemplate**

MS present an issue with the entry point of XSLT processing. Currently there are no top level entry point in the XML schema, which leave the door open for ambiguities. He proposes to add a top level template to make this certain. HA responded that the current S-101 portrayal catalogue is draft, and that therefore some items are missing. HA further explained that the proposal might complicate the XSLT rules, and offered to discuss further with MS offline to work out a solution. HB stated that he supported the proposal to have a top level entry point. HA pointed out that the change could result in a complete redesign of the portrayal catalogue builder. The working group agreed that there could be issues, however, since the current portrayal catalogue is draft, it was agreed that a wait and see approach should be taken to such a time as an S-101 portrayal catalogue is made from the portrayal catalogue builder (PCB).

**10.10A Use of LayerID**

EM presented a paper on how layerID can be used for interoperability aspects, including a redefinition of the item and a better explanation of the use. Proposal was accepted by the working group.

* EM and JP to update the S-100 Part 4 redline to reflect the change.

**S-100 10.11A Request for Unique identifier in S-100**

EM presented a paper on behalf of NIPWG requesting that S-100WG consider the inclusion of a unique identifier concept within S-100. Several member states voiced support for the need of a schema for unique identifiers within S-100. During the discussion on the paper it was proposed that S-100 adopt the IALA MRN concept, pending IALA’s adoption of the same, this was agreed by the working group. JP thanked NIPWG for the paper.

* Pending IALA approval of the MRN concept, JP to add clarifying language to S-100 that when UIs are used within the S-100 Framework the IALA MRN concept should be used.

**10.12A Alerts and Indications**

MS apologies for not having time to present the item in full due to travel. He pointed out that the proposal assumed that safety contour was included in XSTL, and stated that if that remains as a hard coded item, the proposal as is might need revision. The proposal was well received, and recognized as a good step towards ensuring machine readability of the future ECDIS. HP supported the approach. EM also supported the approach, and will sent MS comments on the proposal.

SPAWAR, Furuno, Hugh Jeppesen will support the further development.

HA raised a concern over how tracking of the various portrayal related issues. JP answered that she has a to do action to create a tracking mechanism to capture the history of the portrayal development so that later arriving developments can see how decisions were derived.

* JP & AP to develop a portrayal decision process tracking mechanism.

**Any Other Business**

**EU e-NAV Project Overview**

KI reported on the EU project STM. In the project an exchange of MSI, SAR and MSP information will take place. Including using a draft of S-124 datasets to package MSI datasets.

JP announced that S-100WG1 will be the last meeting of JW, and thanked him for all his contributions to the development of S-101 and the S-101 DCEG specifically.

**14 Date and Venue of Next Meeting**

Italy offered to host the next S-100WG meeting. The offer was accepted with gratitude. Date is still pending.

**15 Close of meeting**

JP thanked the host JHOD for hosting the working group and closed the meeting.

**List of initials**

|  |  |
| --- | --- |
| JP | Julia Powell |
| JW | Jeff Wootton |
| GT | Guttorm Tomren |
| OF | Odd Aage Foere |
| HE | Hans Engberg |
| MK | Miko Hovi |
| RG | Robert Greer |
| TR | Tom Richardson |
| YB | Yong Baek |
| EM | Eivind Mong |
| MS | Mikan Stamenkovich |
| JL | Junshik Lee |
| SO | Sewoong Oh |
| TP | Tom DuPuyt |
| LH | Liz Hahessy |
| EK | Ed Kuwalek |
| HB | Holger Bothein |
| JoP | Johnathan Prichard |
| DB | Dave Brazier |
| HP | Hannu Peiponen |
| CM | César Reinert Bulhões de Morais |
| AP | Anthony Pharaoh |
| KI | Konstantin Ivanov |
| HA | Hugh Astle |
| RM | Raphael Malyankar |
| LP | Lynn Patterson |
| DL | Denise LeDue |