

# Minutes of the first S121 Project team meeting

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*Hosted at DOALOS, United Nation Headquarters, New York, December 5<sup>th</sup>–9<sup>th</sup>, 2016*

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## 1. Acronyms, Terms & Definitions

- ABLOS: Advisory Board on the Law of the Sea
- DOALOS: Division of Ocean Affairs and the Law of the Sea
- HO: Hydrographic Office
- IHB: International Hydrographic Bureau
- ISO19152: ISO 19152 Land Administration Domain Model
- MLB: Maritime Limits and Boundaries
- UNCLOS: United Nations Convention on the Law of the Sea
- S100: IHO S100 The Universal Hydrographic Data Model
- S121: S121 standard on Maritime Limits and Boundaries
- S121 Data Model: The foundation portion of the standard enabling States to encode their MLB in a digital formats
- S121 Encodings: Technical descriptions showcasing how the information stored in the S121 Data Model can be manipulated and reformatted programmatically to generate the S121 Exchange Formats
- S121 Exchange Formats: Describe the file formats used to express the information contained in the S121 Data Model
- S121 Feature Objects: The S121 standard components used to describe the MLB core objects. These features objects are attributed based on whether they are location, limit or zone, and they can be described conceptually of spatially by points, curves, surfaces, or by text.
- S121 Information Objects: The S121 standard components used to describe administrative, source and party objects.
- S121 Objects: There is two main types of objects, S121 Information Objects and S121 Feature Objects.
- S121 Product Specification: A standardize document used to describe the inner workings of the standard
- S121 PT: S121 Project Team
- S121 Use Cases: Practical usages that will be made of the standard. These S121 Use Cases generally leads to the definitions of specific S121 Encodings, and S121 Exchange Formats
- TOR: S121 Project Team Terms of Reference

## 2. Participants

Code	Title	Family Name	First Name	Member State / Organ	Organisation
MALC	Mr.	ALCOCK	Mark	Australia (Chair)	Geoscience Australia
JBRO	Mr.	BROWN	John	ABLOS	ABLOS – Advisory Board Law of the Sea (CHAIR)
ECHA	Mrs.	CHANG	Eunmi	Korea	University of Seoul
SDUR	Mr.	DURAND	Sébastien	Canada (Vice-Chair)	Canadian Hydrographic Service - HO
RGRE	Mr.	GREER	Robert	United States of America	SPAWAR – Space and Naval Warfare Systems Command
TLIG	Mr.	LIGTERINGEN	Thijs	Netherlands	Royal Netherlands Navy - HO
JNER	Mr.	NERANTZIS	Jimmy	United States of America	NGA - National Geospatial-Intelligence Agency
LNIC	Mrs.	NICOL LIND	Lisa	Sweden	Swedish Maritime Administration - HO
DO'B	Mr.	O'BRIEN	Douglas	Canada	IDON Technologies
SPAR	Mr.	PARK	Sungsan	Korea	Hydrographic Survey Division
APHA	Mr.	PHARAOH	Antony	IHB	IHB – International Hydrographic Bureau
RSAN	Mr.	SANDEV	Robert	United Nations	DOALOS - Division for Ocean Affairs and the Law of the Sea
JSME	Mr.	SMEECKAERT	Julien	France	SHOM - Service hydrographique et océanographique de la Marine - HO
TWAL	Mrs.	WALLACE	Tara	United States of America	NOAA - National Oceanic and Atmospheric Administration
MWES	Mrs.	WESTINGTON	Meredith	United States of America	NOAA - National Oceanic and Atmospheric Administration
SZAR	Mrs.	ŽARIĆ	Snježana	United Nations	DOALOS - Division for Ocean Affairs and the Law of the Sea

## 3. Remote Presenters

Code	Title	Family Name	First Name	Member State(Organ)	Organisation
PEGE	Mr.	EGESBORG	Paul	Canada	NRCan – Natural Resource Canada
DLAU	Mrs.	LAURENT	Dominique	Inspire	European Commission – Infrastructure for Spatial Information in Europe
JPOW	Mrs.	POWELL	Julia	United States of America	NOAA - National Oceanic and Atmospheric Administration

## 4. Acknowledgements

The Project team (alternatively chair and co-chair) wishes to acknowledge the assistance offered by the United Nations Division of Ocean Affairs and Law of the Sea in hosting the meeting and thank all participating States and project team members.

Thanks for all of your work, we are happy to follow up on anything.

Merry Christmas and happy New Year 2017 to all!

## 5. Agenda

Agenda #	Document#	Agenda Item	Presenter
1.0		OPENING AND ADMINISTRATIVE ARRANGEMENTS	
1.1	S121N01	Meeting Logistics	[Alcock]
1.2	S121N02	List of Documents	[Alcock]
1.3	S121N03	List of Participants	[Alcock]
2.0		APPROVAL OF AGENDA	
2.1	S121N04	Agenda	[Alcock]
3.0		CONTEXT DESCRIPTION	
3.1		Overview of requirements and goals	[Alcock]
4.0		LAW OF THE SEA REQUIREMENTS & PERSPECTIVES	
4.1		Overview of UNCLOS convention	[Alcock]
4.2		UNCLOS deposit requirements	[Sandev]
4.3		IHO perspective	[Pharaoh]
4.4	S121N05	S100 structure and vision	[Powell]
5.0		LAW OF THE SEA REQUIREMENTS & PERSPECTIVES	
5.1	S121N06	Development strategy and standard overview	[Durand]
5.2		Discussion	[All]
6.0		STAKEHOLDER REQUIREMENTS & APPROACHES	
6.1		Australian approach	[Alcock]
6.2	S121N07	Canadian approach	[Durand]
6.3		Sweden	[Nicol Lind]
6.4		Republic of South Korea	[Chang]
6.5		S121 Feature Objects Base feature overview summary	[All]
6.6		Discussion	[All]
6.0		MANAGING LEGAL INFORMATION & STAKEHOLDER CONTINUATION	
6.1	S121N08	Discussion of ISO19152 approach (WebEx, 10:00)	[Egesborg]
6.2	S121N09	Discussion on INSPIRE (ISO19152 implementation) (WebEx, 11:00)	[Laurent]
6.3	S121N10	Netherlands	[Ligteringen]
6.4		France	[Smeeckaert]
6.5		United States of America	[Westington]
6.6		Discussion	[All]
7.0		MODEL DESCRIPTION AND WAY FORWARD	
7.1	S121N11	Feature Model description (1 hour )	[Durand]
7.2		Way forward	[Pharaoh & All]
7.3		Discussion	[All]
7.4		Group Picture	[All]
7.5		Group Lunch	[All]
7.6		Visit from DOALOS Director, and Deputy Director	[Gabriele Goettsche-Wanli & Vladimír Jareš]
7.7	S121N12-N13	Review of United Kingdoms comments	[Alcock]
7.8		Discussion	[All]
7.9		Conclusions	[All]

## 6. Action Items

#	Actor	Item	Due Date
1	[S121 PT]	Make all S121 PT1 documents available	16/12/2016
2	[DOALOS]	Provide a first revision on the core S121 Feature Objects terms and definitions	08/01/2017
3	[S121 PT]	All States to review of the core S121 Feature Objects terms and definitions	31/01/2017
4	[DOALOS]	Statement describing the S121 Use Case(s) with requirements and template or case example for deposit	31/01/2017
5	[S121 PT]	Decide when and where will the next meeting be held – Options presented at end of the minutes	31/01/2017
6	[IHB]	Develop a website to support S121	TBD
7	[IHB]	Develop a single Email address for the whole S121 PT	TBD
8	[S121 PT]	Needs to supply an XML version of the S121 Feature Objects for inclusion in the S100 feature concept dictionary, before S100 meeting.	17/03/2017
9	[S121 PT]	Need to develop S121 test data	TBD
10	[S121 PT]	Need to propose a redline version of the S100 Product Specification to address any changes required	TBD
11	[S121 PT]	Revise S32 dictionary definitions	TBD
12	[S121 PT]	Request for the S121 Feature Objects to be part of S100 feature catalogue, before S100 meeting.	01/03/2017
13	[S121 PT]	Request for the S121 Feature Objects to be part of an independent domain called MLB, before S100 meeting.	01/03/2017
14	[S121 PT]	Request that any pre-existing features found in S100 feature catalogue that described the core S121 Feature Objects be moved to the MLB domain and be updated, before S100 meeting.	01/03/2017
15	[S121 PT]	To provide a report and recommendation to S100, before S100 meeting.	01/03/2017
16	[S121 PT]	To provide a report and recommendation to HSSC, before HSSC meeting.	01/11/2017
17	[S121 PT]	Present a paper/presentation in ABLOS	TBD
18	[S121 PT]	Upon the revision of the core S121 Feature Objects and its structure, take into consideration the proposed UK code lists	TBD
19	[S121 PT]	Discuss and establish code lists	TBD
20	[S121 PT]	Discuss and establish S121 Encodings and main S121 Exchange Formats (For <b>Legal</b> : Structured Text or Well Know Text; For <b>Production</b> : GML, GeoJson, or other maybe Shape. For <b>Public</b> : probably GML. KML, and maybe GeoJson)	TBD
21	[DOALOS]	Will update the scope of the TOR document, to be revised after by the member States	TBD
22	[S121 PT]	Update the TOR scope & meeting frequency	TBD
23	[S121 PT]	Produce an updated S121 Product Specification	TBD
24	[S121 PT]	Produce an S121 Exchange Formats transfer files	TBD
25	[S121 PT]	Produce an updated S121 Schema	TBD
26	[S121 PT]	Produce a S121 standard overview document	TBD
27	[S121 PT]	Produce S121 Classes Derivation ISO19152 and S100 to S121 documentation	TBD
28	[S121 PT]	Produce S121 Core Feature Objects and Code Lists documentation	TBD
29	[S121 PT]	Produce S121 Encodings and S121 Exchange Format Guide documentation	TBD
30	[S121 PT]	Produce S121 Data Model Usage Guide and Best Practices documentation	TBD
31	[S121 PT]	Produce S121 Template, Examples and Test Suite for all S121 Use Case the priority being DOALOS deposit	TBD
32	[S121 PT]	Communicate ISO 19152 implementation findings to the ISO 19152 group.	28/03/2017



## 7. S121 Key Work Direction Decisions

1. The S121 PT agreed to make the meeting sufficiently informal in order to promote discussion and collaboration; however, it became clear by day 3 that we needed a secretary (see decision #8)
2. The S121 PT agreed to the ISO concept, separating the carrier (S121 Exchange Format) from the content (S121 Data Model). This would enable the users to encode the data in several manners providing the capacity to exchange, share, and publish the data through diverse S121 Exchange Formats suited to specified S121 Use Cases.
  - We agreed to narrow the conformance classes/use cases/output datasets for S121 and removed “development” (Use Case #1, development dataset) and “client specific” (Use Case #4, client specific dataset) because both of these topics are internally driven and including them is likely to overburden what should be a conceptually simple and broadly accessible S121 product specification.
3. The S121 PT accepted ISO19152 as a solution to support administrative information within the MLB context and to other context such as fisheries and environment at a later stage.
4. The S121 PT agreed at this stage to focus on the definition of the core S121 Feature Objects as described in UNCLOS and agreed to do a definition check with DOALOS to ensure that we had the right scope/direction to inform next steps
5. The representatives of UN/DOALOS, ABLOS and IHB express support of the general direction of the activities of S121 PT.
6. The IHB and ABLOS indicated that TOR of the S121 PT need to be aligned with relevant UN General Assembly resolutions. The S121 PT agreed to adjust the TOR accordingly.
7. Following IHB’s suggestion that the group appoint a secretary, the representative of DOALOS nominated Sebastien Durand to be the S121 PT secretary as the expert behind the creation of most of the S121 related documentation. It was considered that his expertise and knowledge of the S121 standard structure would significantly shorten and enrich future discussion aiming at finalizing the model. SDUR accepted. This decision happened 3 days into our meeting.



## 8. Comments by Representatives of International and Intergovernmental Bodies

### 8.1. DOALOS - Division for Ocean Affairs and the Law of the Sea

1. DOALOS director, Mme Gabrielle Goettsche-Wanli and DOALOS deputy-director, Mr. Vladimír Jareš, welcomed the S121 PT and expressed their appreciation to IHO Member States for forming this project team to address the long standing need for the standardization of the description of baselines, outer limits of maritime zones and maritime boundaries. They also thanked the project team for selecting DOALOS to host their first meeting. They commended the Chair, Mr. Mark Alcock, and the Vice Chair, Mr. Sebastien Durand, for their work and dedication to move the project forward. They further emphasized the importance to see the project come to a conclusion as fast as possible since UN Member States are eager to see the deposits shared in a more comprehensive manner, and reiterated DOALOS commitment to provide continued support to the project team within DOALOS means. They stressed that the outcome of the project team's work will inevitably start a new era in the management of baselines and outer limits of maritime zones and maritime boundaries both at national and international level.

### 8.2. ABLOS – Advisory Board Law of the Sea

2. John Brown chairman of ABLOS, congratulated the S121 PT for the extensive amount of work done and significant progress toward achieving S121 mandate

### 8.3. IHB – International Hydrographic Bureau

1. Tony Pharaoh assistant-director of the IHB described the IHO standardisation process. Mr. Pharaoh also identified that the secretary-general of the IHO (Mr. Robert Ward) indicated the support for the use of the ISO19152 for use in Marine domain and that the S121 vision and approach was in line with the IHO strategic direction.

## 9. S121 Meeting Discussions

### 9.1. Presentations

1. Presentations were made by each of the States representatives verbally and as prepared presentations. Representative from Canada described the development strategy and provided a brief overview of the proposed standard. Three presentations were made via WebEx:
  - a. Paul Egesbord, presented ISO19152, its usage and implication within Natural Resource Canada
  - b. Dominique Laurent described the position of European vision of INSPIRE and United Nations Global Geospatial Information Management.
  - c. Julia Powell described the process of alignment with S100 and how to build a Product Specification.
2. For other presentations please refer to the Agenda above.
3. Prepared presentations and other related documents will be made available through the S121 PT website.

### 9.2. MLB Expression Requirements

1. The representative from Australia indicated that from their perspective, the ability to depict MLBs with various geometries (points, lines, polygons or conceptually) is essential to ensure that the standard is flexible enough to represent all State's views. The same ability was also considered useful by the representative from Canada. The U.S. shared those views, but expressed concerns about creating an exchange format that is too prescriptive (e.g., a territorial sea must be an area as currently in S-57/future S-101) OR has so many implementation options that it would be impossible to actually exchange and share information.
2. The representative from Australia indicated that legal traceability is essential maintain and describe MLB in an authoritative manner. The description of the legal context data must be supported by the standard. The same ability was also considered useful by the representative from Canada. This establishes a requirement for source referencing at all levels through the S121 standard for both administrative and spatial sources.
3. The S121 PT agreed that S121 standard needs to support, at a minimum, States Parties to UNCLOS deposit obligation, but also be able to support wider State needs relative to the description and deposit of baselines, outer limits of maritime zones and maritime boundaries and associated juridical zones. The deposit structure, in accordance with UNCLOS provisions, consists at a minimum of simple geographic features such as points and lines with minimal descriptions, while more complex structure to meet the needs at national level could involve legal document structure/content as described in ISO19152.

### 9.3. MLB Core Objects

1. US representative indicated that the proposed S121 Feature Objects and related code lists should be revised, and expanded. It was concluded that this should be implemented through actual proposals by the State(s) when the revision of the features' definitions, which will be provided by DOALOS, will take place. In order to establish the core

component of the S121 standard which focuses on MLBs objects type, DOALOS was asked to provide MLBs definition for each potential core S121 Feature Objects as per UNCLOS.

2. The S121 PT agreed to request that the domain of the features currently found in S-101 that pertains to the domain of the S121 be reassigned to MLB and that the core S121 Feature Objects also find their way in the S100 feature catalogue.

#### 9.4. S121 Encodings

1. The S121 PT agreed to finalize the S121 Data Model first, making sure that all core S121 Feature Objects were well defined first. Code lists and S121 Encodings discussion will come after. The discussion on encoding was deferred.

#### 9.5. Versioning and Sourcing

1. The S121 PT had a discussion on versioning and sources. The S121 PT agrees that that versioning is a necessary capacity and that both spatial and administrative sources may need to be expressed for all S121 Objects.

#### 9.6. Review of the Document Provided by the UK

1. The documents provided by UK were reviewed. UK provided the following documents for consideration: (i) general comments and (ii) a review of an older version of the S121 Product Specification.
2. The S121 PT agreed with the UN proposal that at this stage there are three S121 Use Cases: (i) **Legal**: Supporting the Deposit of MLB in accordance with UNCLOS. The creation of an S121 Exchange Format that is both human and computer readable. (ii) **Production**: Support the creation of S57, S101 and AML formats. (iii) **Public**: Support the expression of the MLB data in generic file formats accessible to the general public. As a result the S121 PT considered the development of the **Data Administration** S121 Use Case to be inherent to the management responsibilities of the implementation body and the **Client Data** S121 Use Case too specific, bearing in mind that the S121 Data Model allows for unlimited customization of features to meet any State's needs, and using the predefined or specific S121 Exchange Formats will support any clients' needs. In addition, it was agreed that at the current stage of development of the S121, the attention should be put toward the S121 Data Model. Limiting the number of S121 Use Cases is in fact a good strategy since it limits the number of S121 Exchange Formats to describe in the standard. If other S121 Use Cases are found to be needed the S121 PT will assess these requirements in the future as they will be requested.
3. The UK paper proposed to use only GML for S121 Encodings. However S121 PT is of the opinion that the S121 Encodings needed to deliver publically accessible data needed to meet the "due publicity" requirement of UNCLOS and be readable without specialized software. Therefore, a plain text and other formats of S121 Encodings may be required to support the MLB deposits to DOALOS and other S121 Use Cases.
4. The UK proposed some additional feature types, while some such as "roadstead" were accepted; it was proposed to consider others when the list of the core components of MLBs as per UNCLOS is considered by States members of S121 PT in late January 2017.

### 9.7. Data Protection Scheme

1. After a request from France representative, the S121 PT agreed to investigate the IHO S63 data protection scheme (for future integration in S121).

### 9.8. Portrayal Issues

1. It was agreed that portrayal issues be dealt with or considered at a later time. (Decision to be revisited in the next meeting).

### 9.9. Copyrights Issue

1. DOALOS also mentioned that copyrights on paper and digital charts were identified as an issue, but no action was suggested at this point, since if UN Member States start depositing lists of geographic coordinates of points, following S121 the issue will cease to exist.

### 9.10. S121 Product Specification Improvements

1. USA suggested that the annex on the vertical datum in the S121 Product Specification document be removed as it is not in the direct scope of MLB as an international exchange format. The S121 PT agreed, but also noted that it may be useful for coastal States to track this type of information internally.
2. S121 PT agreed to update the scope section with the section that will be provided by DOALOS
3. ABLOS suggested that the Product Specification be divided into simpler and more targeted documents. This suggestion was approved. The main documents expected to be generated are :
  - a. S121 Standard Overview document (10 pages).
  - b. S121 Product Specification in accordance with the S-100 template
  - c. Separate document of the derivation of classes
  - d. Core Feature Catalogue Description
  - e. S121 Usage Guide and Best Practices
  - f. S121 Encodings and S121 Exchange Format Guide.
  - g. S121 Template, Example and Test Suite (DOALOS Deposit)
4. Keep only the following S121 Use Cases:
  - a. Legal
  - b. Production
  - c. Public

## 10. S121 Terms of Reference Document

1. The S121 PT agreed to review and edit the following section of the Terms of Reference (TOR)
  - a. Provide a clear scope referencing the request established by UN general Assembly at paragraph 6 of the annual Oceans and Law of the Sea resolution 59/24, adopted by the General Assembly on 17 November 2004. (A/RES/59/24)  
*"6. Requests the Secretary-General to improve the existing Geographic Information System for the deposit by States of charts and geographical coordinates concerning maritime zones, including lines of delimitation, submitted in compliance with the Convention, and to give due publicity thereto, in particular by implementing, in cooperation with relevant international organizations, such as the International Hydrographic Organization, the technical standards for the collection, storage and dissemination of the information deposited, in order to ensure compatibility among the Geographic Information System, electronic nautical charts and other systems developed by these organizations;"*
  - b. Provide a revised mandate
    - i. Defining a proposed data model;
    - ii. Create an S-100 conformant product specification for Maritime Limits and Boundaries to support coastal States' depository obligations in accordance with the Convention;
    - iii. Determine if S-100 needs to be extended to facilitate the implementation of the deposit obligation of coastal States' under the Convention.
  - c. With respect to the procedures, the S121 PT should work primarily by teleconferences, written correspondence however a face-to-face meeting needed at least once a year.
  - d. Add section on the TOR revision stating that the TOR must be revised when needed or at least every two years. On this subject, the US was under the impression that this group should be able to complete its work in a relatively short timeframe.

## 11. Communication Strategy

1. The IHB suggested using a website construction to support S121 PT. The S121 PT accepted. This strategy will improve means of communication, improving access, content, and will provide better management options to deal with membership registration, and mailing lists, documentation update and project status advancement.

## 12. Next Meeting

1. The S121 PT agreed to reconvene within the next 6 months.
  - a. Sweden offer to investigate the possibility to hold meeting in June in Stockholm.
  - b. United States of America offered Boulder, Colorado.
  - c. DOALOS indicated that NEW YORK is always an option as long as there are no overlaps with meetings serviced by DOALOS.