

S-101 Project Team Meeting 9 (S-101PT9)

Wellington - New Zealand - Wed 23rd Nov – Friday 25th Nov 2022

(In conjunction with ENCWG7)

Draft Record

NOTE: the following Record is ordered by Agenda Item number and not in the order of Papers as included in the Timetable for the meeting (S-101PT9-02).

Decisions are highlighted in **grey**. Action numbers highlighted in **blue**.

Topics	Document	Issues for discussion and required outcomes
Opening of the meeting	-	<p>Introductions to the ENCWG</p> <ul style="list-style-type: none"> - The S-101PT Chair, Mr Thomas Richardson, welcomed all participants to the S-101PT session of the combined meeting with the ENCWG. - He thanked all members of the PT for the progress that had been made in the development of S-101 despite having not met face-to-face since 2019, and stated that the principle outcome of the meeting was to achieve Project Team approval of the Product Specification Main document and Annex A – <i>Data Classification and Encoding Guide</i> (DCEG) for Edition 1.1.0 of S-101 to be submitted for approval of the S-100WG at S-100WG7 (December 2022). - He thanked Toitū Te Whenua Land Information New Zealand LINZ for hosting and for the excellent organization and hospitality experienced so far during the week.
Participants	S-101PT9-01A	<p>List of registered participants [S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair was pleased to note the number of face-to-face participants attending the meeting (32 attendees), with 87 registered attendees overall. - He encouraged all attendees to review the S-101PT List of Contacts and provide the IHO Secretariat with any updates. [Permanent S-101PT Action]
Agenda	S-101PT9-02	<p>Approval of the agenda [S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair tabled the S-101PT9 Agenda and timetable, which was accepted without amendment, noting that Papers to be presented by remote participants would be taken at a time suitable to their time zone and the timetable would be adjusted accordingly. [Decision]
HSSC14 Actions	S-101PT9-03	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The meeting noted the decisions of impacting on the S-101PT from HSSC14; in particular discussions related to the ISO 9001 cell which will be further discussed at Agenda item 9.2. [Decision] - The meeting noted HSSC14 Action 14/11 and confirmed that S-101 Edition 1.1.0 would be as much as possible aligned to S-100 Edition 5.0.0. [Decision] - The Chair reported on HSSC14 Action 14/12 and stated that this task would be addressed prior to the next HSSC meeting. [Action S-101PT/01] - The Chair reported that there is a requirement for WGs and PTs to re-elect their executives following each regular Session of the Assembly. PT members were invited to consider their willingness to nominate for the positions of Chair, Vice-Chair and Secretary in the lead-up to the next S-101PT meeting. [Action S-101PT/02]
S-101PT8 Report	S-101PT9-04	<p>[IHO Sec (JW)]</p> <ul style="list-style-type: none"> - The S-101PT9 Report was accepted without comment. [Decision]
S-101PT Actions	S-101PT9-05	[S-101PT Chair]

		<ul style="list-style-type: none"> - The Chair thanked the members of the S-101PT for the significant progress that had been made on the S-101 Actions list since S-101PT8, and encouraged members to check for any outstanding Actions that may be within their remit. - There were no comments from the floor in regard to the status of S-101PT Actions.
DCEG SG Update	S-101PT9-06.1	<p>[IHO Sec (JW)]</p> <ul style="list-style-type: none"> - The DCEG Sub-Group Lead (JW) presented the report on the activities of the DCEG Sub-Group since S-101PT8 and tabled the draft S-101 DCEG Edition 1.1.0 document for consideration of the PT. The intention for this meeting was for the PT to reach consensus on the outstanding issues and approve a final draft Edition 1.1.0 of the DCEG for submission to the S-100WG7 meeting (December 2022) for approval. - It was noted that decisions that had been made at the NCWG8 meeting held in the week prior to S-101PT9 had resulted in the removal of all existing encoding from S-101 that resulted in no corresponding portrayal in ECDIS. Any resultant amendments to the draft DCEG have been applied in accordance with the NCWG8 decisions. - With the exception of the following, all recommendations made in the Paper were accepted for inclusion in the final draft Edition 1.1.0 of the DCEG [Action S-101PT/03]: <ul style="list-style-type: none"> o It was decided to retain the depth-related attributes for the feature FoulGround, noting that currently there were no ECDIS alarms/indications related to this encoding. [Action S-101PT/04] - In addition, further work will be required in regard to the following: <ul style="list-style-type: none"> o Additional discussion/guidance is required for the encoding of the portrayal related (system) attributes (replacement for S-52 CSPs) – to be discussed at a dedicated DCEG Sub-Group meeting. [Action S-101PT/05] o It was suggested that the application of the UpdateInformation Meta feature be mandated for all “significant” (that is, having a significant impact on safety of navigation) Updates as a replacement for the current ECDIS system implementation for highlighting ENC Updates. It was agreed that the changes made to UpdateInformation for Edition 1.1.0 were OK, however further discussion was required. It was noted that such implementation could potentially result in significantly more work required by Data Producers. [Action S-101PT/06] o Based on the decision made at the meeting to indicate hazardous cargo berths on ENCs (consistency with S-4 and INT1), it was decided that the enumeration type attribute categoryOfCargo, as already included in the IHO GI Registry, is to be added to the feature Berth. [Action S-101PT/07] - The meeting approved the draft Edition 1.1.0 of the S-101 DCEG to be submitted to the S-100WG subject to application of changes related to Actions 3, 4 and 7 above and finalization of the draft [Decision]. IHO Sec (JW) will produce the final draft document for submission to S-100WG7. S-101PT Members should review changes made since S-101PT9 in the submitted draft and pass any feedback to their S-100WG representative as required. [Action S-101PT/08]
Portrayal SG Update	S-101PT9-06.2	<p>[S-101PT Vice-Chair]</p> <ul style="list-style-type: none"> - The S-101PT Vice-Chair and Portrayal Sub-Group Lead (AS) presented the report on the activities of the Portrayal Sub-Group since S-101PT8. - Principle items of note: <ul style="list-style-type: none"> o Portrayal Catalogue Edition 1.0.2 is available for peer review. The meeting determined that the Edition 1.0.2 Portrayal Catalogue could be posted in the GI Registry as published, with any identified changes from implementation experience included in Edition 1.1.0. [Decision] [Action S-101PT/09] o New portrayal items required for S-101 Edition 1.0.2 have been proposed to the IHO GI Registry, with a gap analysis under way to identify the additional portrayal requirements for S-101 Edition 1.1.0. A Sub-Group meeting is scheduled for January 2023 to work on the finalization of Edition 1.1.0 of the Portrayal Catalogue. o New Portrayal GitHub issues have been created as a result of the discussions at NCWG8 to resolve “no symbology” encoding in S-101 (see Agenda item 06.1 above).

		<ul style="list-style-type: none"> ○ Work is continuing on the implementation of S-101 Alarms and Indications, which is intended to be finalized for S-101 Edition 1.2.0. - In response to a question from the floor, the Portrayal Sub-Group Lead confirmed that a "Summary of Changes from S-52" document for developers/implementers to access is on the Sub-Group list for future work.
Validation Check SG Update	S-101PT9-06.3	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair presented the report on the activities of the S-101 Validation Checks Sub-Group since S-101PT8. He thanked i4Insight, Nautical Dimensions, Primar and DK for their assistance, along with IC-ENC, in conducting a review of the changes to S-101 introduced in DCEG Edition 1.0.2 so as to close the gap from the initial set of validation checks that were published in May 2021; and to apply additional changes required due to the publication of S-58 Edition 7.0.0 (partially complete as at S-101PT9). - A new draft set of (440) Checks has been prepared along with a separate document containing just the changes, however there remains a significant amount of further work to be done (for example, Check messages are incomplete). The revised set of Validation Checks will be made available to the entire user community. - The S-100WG Co Vice-Chair (DK – LH) reported that a S-100 Validation Checks Sub-Group was in the process of being set up, with a dedicated session on this to be discussed further at the S-100WG7 meeting in December. The S-101 Validation Check Sub-Group will be required to coordinate with this Sub-Group in the future. - A question was asked in relation to the status of the S-57 Readiness Checks? The Chair responded that these Checks had been developed by IC-ENC. They are related to Edition 1.0.0 of S-65 Annex B and can be reported out at the ENC Conversion SG meeting in Jan/Feb 2023. - S-101PT9 noted the report from the Validation Checks Sub-Group [Decision] – no Actions arising from this report.
Test Dataset SG Update	S-101PT9-06.4	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair presented the report on the activities of the S-101 Test Dataset Sub-Group since S-101PT8. He noted that following decision S-101PT8-17 a Sub-Group had been formed which he was leading in the absence of a volunteer, however due to limited resources a contract had been established via two suppliers to deliver an initial set of S-101 Test Data Sets (TDS) utilising IHO funding. To date, 15 out of 19 TDS have been delivered, compliant to DCEG Edition 1.0.2 (these can be found at https://github.com/iho-ohi/S-101-Test-Datasets/tree/main/dev), with delivery of the final TDS imminent. A S-100 Edition 5.0.0 Exchange Set has been created containing the completed datasets (https://github.com/iho-ohi/S-101-Test-Datasets/tree/main/dev/exports) and S-101PT members were invited to provide feedback. [Action S-101PT/10] - Special thanks were conveyed to Kevin Dickens (NGA) for creating specifications to support all TDS. - Future work: Once published, the TDS will require updating to S-101 Edition 1.1.0 and enriched as additional display scenarios are identified. Data Producers were invited to contribute to this work. [Action S-101PT/11]. The final TDS may be utilised in the development of the S-164 TDS. - The S-100WG Co Vice-Chair (DK – LH) noted that there will be a S-164 Workshop during S-100WG7. - On the question of software tools to create/edit the TDS, the Chair stated that these should be made available as production tool manufacturers update their software. - Furunu (HP) enquired about testing data dependencies between different Product Specifications (he considers that will be a big deal as it may contribute significantly to possible ECDIS anomalies). The Chair stated that these tests are not there yet but will be part of further work.
Scales SG Update	S-101PT9-06.5	<p>[FR (CM)]</p> <ul style="list-style-type: none"> - The ENC Scales and data Load/Unload Sub-Group Lead (CM) presented the report on the activities of the Portrayal Sub-Group since S-101PT8. He noted that the S-101 Documentation and FC GitHub repository (https://github.com/iho-ohi/S-101-Documentation-and-FC) had been utilised to raise and discuss related issues intersessionally.

		<ul style="list-style-type: none"> - The meeting then discussed the GitHub issues included in the report with the following outcomes [Action S-101PT/12]: <ul style="list-style-type: none"> o Definitions for Maximum and Minimum Display Scales: Amended definitions as proposed approved with minor amendments. o Optimum Display Scale: Based principally on feedback from the OEMs (and however noting continuing concerns from NIWC), it was agreed that for S-101 Edition 1.1.0 only the terms Maximum and Minimum Display Scale were to be used; and any reference to Optimum Display Scale was to be removed from the body of the document. However it was agreed to retain optimumDisplayScale as an optional attribute for S100_DataCoverage for development and testing purposes. o The meeting approved the Sub-Group decision that For Edition 1.1.0, both the overscale indication (text on the border of the screen) and overscale pattern (prison bars on the Data Coverage feature(s) concerned) should be present as soon as at least one of the Data Coverage features that participate in the display has a Maximum Display Scale that is smaller than the mariner's selected viewing scale. o Overlapping scale ranges: The meeting agreed that it must be specified that there cannot be any "overlap" of scale ranges within a geographic area (that is, the Minimum Display Scale of a dataset must be larger than (ideally equal to) the Maximum Display Scale of the next smaller scale dataset). [Action S-101PT/13] o The Dataset Load/Unload algorithm as prepared by SevenCs (HB) is to be included as Annex D to the S-101 Main document, with all amended Figures intended to demonstrate the process to be included in the body of the document. - The Chair thanked the Sub-Group and all involved in progressing these topics; and in particular thanked SevenCs (HB) for development and Geomod (PLB) for testing of the new Data Load/Unload algorithm.
S-101 Ed. 1.1.0 Comment Adjudication	S-101PT9-07	<p>[IHO Sec (JW)]</p> <ul style="list-style-type: none"> - IHO Sec (JW) presented the latest redline draft version of the S-101 Edition 1.1.0 Main document and the associated adjudicated/actioned S-101PT Review Comments document. - An extended editing session took place in order to discuss and make decisions on outstanding review comments, with changes being made to the draft Main document "on the fly" where possible. The meeting approved the draft Edition 1.1.0 of the S-101 main document to be submitted to the S-100WG subject to application of all approved changes, including input as required from relevant subject matter experts and finalization of the draft [Decision]. IHO Sec (JW) will produce the final draft document for submission to S-100WG7. S-101PT Members should review changes made since S-101PT9 in the submitted draft and pass any feedback to their S-100WG representative as required. [Action S-101PT/14] - The finalised adjudicated/actioned S-101PT Review Comments document is included as an Annex to this meeting Record. There were several comments where it was decided that no action would be taken for S-101 Edition 1.1.0 but the comments would need to be considered and possible appropriate action taken for Edition 1.2.0. These comments are indicated in the Annex by yellow highlighted text in the "Secretariat observations" column. [Action S-101PT/15]
Loxodromic Interpretation in S-101 ENCs	S-101PT9-08.1	<p>[IIC Technologies (JP)]</p> <ul style="list-style-type: none"> - IIC Technologies (JP) presented a proposal to remove the constraint within the S-101 Product Specification restricting interpolation of line segments to loxodromes only. - There were strong reservations to removing this constraint put forward by Furuno (HP), which were supported by Teledyne Caris (HA). It was suggested that, while the arguments for removing the constraint may be sound, this would open the door to inconsistent line segment definitions in S-101 datasets which may in turn cause interpolation issues with ECDIS portrayal. S-101PT9 rejected the proposal for inclusion in S-101 Edition 1.1.0, however it was agreed that the proposal required further investigation and as such should be considered for a later version of S-101. [Decision] [Action S-101PT/16]
S-101 and Vertical Clearance	S-101PT9-08.2	<p>[UK (AR)]</p> <ul style="list-style-type: none"> - UK (AR) presented a proposal to add new rules for ECDIS to alert and provide indications within S-101 ENCs for vertical clearances based on an air draft context parameter.

		<ul style="list-style-type: none"> - It was highlighted that, in addition to S-101, the proposal would also impact the IMO ECDIS Performance Standard MSC.232(82) and any revision of this Standard to recognise S-100, IEC 61174 and S-164. - Noting the recommendation that this proposal is implemented post-Dual Fuel, S-101PT9 approved the proposal for implementation after publication of S-101 Edition 2.0.0. [Decision] [Action S-101PT/17]
Pilotage Feature Symbolology in S-101	S-101PT9-08.3	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair presented a proposal relating to the symbolology of Pilotage information in S-101. The issues identified in the Paper relate to similarities in portrayal between a Pilotage District and a pilot boarding place encoded as an area; and possible confusion between the centred symbol within a pilot boarding place encoded as an area and a pilot boarding place encoded as a point. - IHO Sec (JW) raised the concern that the symbol that has been used for Pilotage District is the pilot boarding place symbol when the Pilotage District is not itself a pilot boarding place. He suggested that the Pilotage District is a type of administrative area and as such should, unless it is considered that the Pilotage District needs to be distinguished from other administrative areas in portrayal, use the “generic” administration area boundary line pattern. - For the distinction of the centred pilot boarding place area symbol from the pilot boarding place point symbol, there was some support for the symbol with the addition of a “box” to represent an area, however concern was raised that there is no standard convention in nautical cartography symbolology that would make the meaning intuitive to the end user. It was suggested that further investigation should be conducted to utilise existing cartographic conventions used in ECDIS to distinguish centred area symbols from point symbols, such as varying symbol size, line weight and/or colour (a “lighter” colour for centred area symbols). - Based on the discussion, S-101PT9 determined that further investigation is required by the Portrayal Sub-Group to achieve an optimum result for both issues that is intuitive to the Mariner. [Decision] [Action S-101PT/18]
QoBD Visualisation	S-101PT9-08.4	<p>[CCOM-JHC/UNH (CK)]</p> <ul style="list-style-type: none"> - CCOM-JHC/UNH (CK) presented a report on the continuing investigations into alternatives for portrayal of bathymetric data quality information in ECDIS. The report focussed on two “countable textures” (systems of lines and clusters of dots) and three colour-based schemes that have been developed for testing; and the results of a survey and in-lab experiment conducted to evaluate these options. - Due to restrictions of time, the report focused on the methodology, survey results and next steps. It was noted that the survey was carried out with ECDIS users throughout the world. - The Chair thanked CCOM-JHC/UNH for this very comprehensive report; and suggested that the 2 most preferred options are further developed for implementation via a Portrayal Catalogue in the Test Beds. [Action S-101PT/19] - Furuno (HP) suggested that QoBD information is only “interesting” to the mariner if it is a “low” value. - PRIMAR (SS) enquired as to whether consideration may be given to using both options (colour and texture)? The Chair responded that anything is possible. CCOM-JHC/UNH responded that they would prefer one or the other.
Improvements to Encoding Maritime Jurisdiction Features in S-101	S-101PT9-08.5	<p>[UK (RC)]</p> <ul style="list-style-type: none"> - UK (RC) presented a proposal to allow curve type geometry to several maritime jurisdiction features that currently allow only surface geometry curve type geometry to several maritime jurisdiction features; and to add a number of new features aligned with the S-121 Product Specification. - While S-101PT9 agreed that there is merit in allowing curve type geometry for some of the existing maritime jurisdiction features in order to remove the “work-around” that currently exists, reservations were raised by Furuno (HP), ECC (MR) and IHO Sec (JW) in regard to the new features proposed. In particular, it was noted that the outer limits of the identified zones are already included in ENC as part of the boundary of the related surface features (double encoding); and the archipelagic baselines and international boundaries are a subset of straight territorial sea baseline and administration area respectively. It was therefore

		<p>questioned as to how the inclusion of these new features would add value to ENC's for the end user from a navigational perspective; and further justification is therefore required.</p> <ul style="list-style-type: none"> - The meeting tasked the DCEG Sub-Group to review all instances of the "work-around" encoding of a "very narrow surface" to represent a linear feature in the DCEG and consider adding curve as a valid geometry for these features [Action S-101PT/20]. UK were invited to provide further justification for the inclusion of the proposed new features in S-101, including draft DCEG redline changes in accordance with the proposal. [Action S-101PT/21]
Use of SMIN/SMAX in S-101	S-101PT9-8.6	<p>[SevenCs (FH)]</p> <ul style="list-style-type: none"> - SevenCs (FH) presented a proposal to amend the definitions and remarks related to the application of scaleMaximum/SMAX and scaleMinimum/SMIN in S-101. - S-101PT9, while agreeing that the recommendations included in the proposal were warranted, noted that these recommendations required in part corresponding changes in S-100, which have not yet been proposed to the S-100WG. It was therefore agreed that the changes would be applied for the next Edition of S-101 (Edition 1.2.0). [Decision] [Action S-101PT/22]
Order of Records in S-101	S-101PT9-8.7	<p>[SevenCs (FH)]</p> <ul style="list-style-type: none"> - SevenCs (FH) presented a proposal to better define the order of the ISO 8211 records in S-101 datasets. - S-101PT9 supported the recommendations in the Paper, subject to a final review and amendment as required by SevenCs (HB). [Decision] [Action S-101PT/23]
Aliases in the S-101 FC	S-101PT9-8.8	<p>[FR (CM)]</p> <ul style="list-style-type: none"> - FR (CM) presented a Paper requesting clarification of the requirement for the inclusion of Aliases in the S-101 Feature Catalogue. - Discussion centred on the usefulness of Aliases in the Feature Catalogue. While it was not considered that the inclusion of Aliases provided any additional useful information to the end user, it was considered by S-101 implementers (and supported by NIWC (MS) in regard to Portrayal Catalogue development) that the inclusion of the S-57 acronyms in particular as Aliases were a useful tool in cross-referencing back to S-57/S-52. - S-101PT9 agreed that further discussion was required within the DCEG Sub-Group, with the outcome of these discussions to be presented to the next S-101PT meeting. [Decision] [Action S-101PT/24]
Adopting the Term "Mechanical Sweep"	S-101PT9-8.9	<p>[SE (KO)]</p> <ul style="list-style-type: none"> - SE (KO) presented a proposal to introduce a new value for the S-101 attribute techniqueofVerticalMeasurement of "mechanical sweep". - S-101PT9 agreed that there is merit in this proposal, and assigned further discussion and resolution based on the recommendations included in the Paper to the DCEG Sub-Group. [Decision] [Action S-101PT/25] - IHO Sec (JW) expressed concern that the definition for the new proposed term was identical to the term "sweeping", which is a Hydrographic Dictionary term and as such is already included in the IHO GI Registry.
New Point Symbol for Reed	S-101PT9-8.10	<p>[FI (JH)]</p> <ul style="list-style-type: none"> - FI (JH) presented a proposal to introduce new S-101 symbology for reed beds of geometric primitive point, which do not symbolize in S-57/S-52 ECDIS. As a justification for this proposal, it was noted that it was approved at the NCWG8 meeting held during the previous week for reed beds of type point to continue to be allowable encoding in S-101, which therefore requires the development of an appropriate symbol for this encoding. - S-101PT9 approved the proposal; and instructed the Portrayal Sub-Group to develop a new symbol for inclusion in the next Edition of S-101. [Decision] [Action S-101PT/26]
Developing New Symbology for S-1xx PS	S-101PT9-9.1	<p>[CCOM-JHC/UNH (CK)]</p> <ul style="list-style-type: none"> - CCOM-JHC/UNH (CK) presented a report on the continuing investigations into new portrayal options that may be used by S-1xx Product Specifications in S-100 ECDIS. - S-101PT9 noted the report from the Validation Checks Sub-Group, which was acknowledged by the Chair as informational at this time. [Decision] – no Actions arising from this report. - The Chair thanked CCOM-JHC/UNH their continuing efforts in supporting S-1xx development, particularly in ECDIS portrayal.

HSSC ISO 9001 Cell Update	S-101PT9-9.2	<p>[S-101PT Vice-Chair]</p> <ul style="list-style-type: none"> - The S-101PT Vice-Chair (AS) provided an update on the activities of the ISO 9001 Cell since S-101PT8. - S-101PT9 noted the report from the HSSC ISO 9001 Cell, noting in particular the risk for the operation of the GI Registry; and resilience of the support of KHOA to the S-100 infra-system. [Decision] - It was recommended that S-101PT Members download the Risks document included on the S-101PT9 meeting page under Agenda Item 09.2 and pass any concerns to the S-101PT Chair and Vice-Chair. [Action S-101PT/27] - IHO Sec (YB) suggested that an abbreviated version of this report and discussions at this meeting is provided to the S-100WG7 meeting (December 2022). [Action S-101PT/28]. He also welcomed the formation of a Registry Project Team.
MASS and S-101	S-101PT9-9.3	<p>[MASS PT Chair (MC)]</p> <ul style="list-style-type: none"> - The MASS PT Chair (MC) provided an update on the activities of the MASS PT, including the results of initial discussions as to whether S-101 datasets could be used as the principle navigation data in autonomous shipping; or whether a separate Product Specification will be required. A number of gaps were identified with S-101 that are not seen to be suitable for autonomous ships; and further discussion will take place in the future between the MASS PT and the S-101PT in this regard. - S-101PT9 noted the report [Decision] – no Actions arising from this report.
S-101 Documentation Changes	S-101PT9-9.4	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair presented a proposal for a different approach to the maintenance of S-101PT (and perhaps other IHO Standards-related) documents. He prefaced the presentation by stating that he is only seeking endorsement by the S-101PT at this time to explore the issue further. - S-101PT9 agreed that there was not enough time to provide any substantial proposal to the ENCWG7 meeting (December 2022), however the proposal regarding future S-101 documentation management through, for example, the GitHub was supported by the PT [Decision]. It was agreed to move forward with the Chair and IHO Sec to investigate solutions within the GitHub document interface and raise the issue to the S-100WG and HSSC respectively [Action S-101PT/29]. Further, the IHO Sec was tasked to investigate the possibility of participating in a training session based on the development of the S-102 Product Specification document management via the GitHub [Action S-101PT/30].
Towards S-101 2.0.0	S-101PT9-10	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair presented a proposed timeframe and associated milestones for the development of S-101 to achieve the timeline for S-101 implementation in accordance with the S-100 Implementation Roadmap. - A major factor in the development of this timeline is the requirement to produce at least one more interim Edition for implementation and testing (Edition 1.2.0) before the final operation version (Edition 2.0.0) is prepared. It was acknowledged that in order to achieve the proposed timeline the operational version of S-101 would need to be ready for submission to the HSSC for the HSSC meeting (May 2024), which is a very constrained timeframe. - The lack of resources in the form of participation from the Member States in key aspects of S-101 development was seen to be an issue in regard to the S-101PT being able to achieve the proposed timeline. - S-101PT9 agreed the proposed timeline, and agreed that because of the constriction in the timeline it would be required to hold two S-101PT meetings during 2023 (see Agenda Item 11). [Decision] [Action S-101PT/31]
S-101 Resources	S-101PT9-10.1	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair included, as part of the presentation in the previous Agenda item, a proposal to establish an “S-101 Resources” page along with a proposed sub-page structure. - S-101PT9 approved the establishment of an S-101 Resources page on the IHO web site, and tasked the IHO Sec with create the page and associated sub-pages. [Decision] [Action S-101PT/32]
Date and Location of Next Meeting	S-101PT9-11	<p>[S-101PT Chair]</p> <ul style="list-style-type: none"> - The Chair invited S-101PT Members to consider hosting either of the two PT meetings that will take place in 2023 (see decision at Agenda item 10).

		<ul style="list-style-type: none"> - An offer was received from FR (SHOM) to host the S-101PT10 meeting in Brest, France, in June 2023. [Post-Meeting: S-101PT10 has been confirmed for 13-15 June 2023 in Brest, France.] [Decision] - As agreed as part of the ENCWG7 portion of the joint meeting, at the kind invitation of ID (Pushidrosal), the S-101PT11 meeting will be held in Lombok, Indonesia during the week commencing 25 September 2023 in conjunction with ENCWG8. [Decision]
AOB: S-101 Metadata Features	S-101PT9-INF1	[NIWC (MS)] <ul style="list-style-type: none"> - NIWC (MS) gave a presentation highlighting possible improvements that may be made to the S-101 data model in order to establish a more direct relationship between encoded geo features and the related attribution that is currently encoded using Meta features. - S-101PT9 noted the report [Decision] and recommended that NIWC submit a formal proposal to the S-100WG – no Actions arising from this report.
Meeting Closes	N/A	

Annex: Consolidated and adjudicated S-101 Main document review comments as finalised at S-101PT9:

1	2	(3)	4	5	(6)	(7)	
Component	CO ¹	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/ Table/ Note (e.g. Table 1)	Type of comment ²	Comment (justification for change) by the CO ³	Proposed change by the CO	Secretariat observations on each comment submitted
	DE		Contents	ed	Headings are inconsistent in using capitalisation of first letters		Applied. Headings checked throughout and amended to be consistent with other IHO Publications.
	PRIMAR	throughout document		ge	Make figure text more discrete by reducing font size/drop bold.		Applied. Figure and Table headings amended throughout to be consistent with other IHO Publications (9 pt Bold text).
	PRIMAR	Introduction	1	ed	Editorial proposal to define better the plug and Play functionality than "...without braking system..."	...updateable as PlugAndPlay...	Applied. Amended to "...as "Plug and Play" system implementations."
	PRIMAR	1.2	S-52	ed	S-52 latest updates are Dec 2020	... with Clarifications up to December 2020	Not applied. S-52 Edition 6.1(,1) is updated with Clarifications to June 2015. It is the PL (4.0(.3)) that is updated to December 2020. S-101PT9: Approved.
	GB	1.2	References		Conversion of S-57 to S-101 is a major (initial) consideration for HO when implementing S-101 coverage.	Add to references: S-65 Annex B S-57 ENC to S-101 Conversion Guidance	Not applied. The References section is intended to list the references that have been utilized in developing the document, not additional references relevant to S-101. Perhaps there should be a sub-clause somewhere in S-101 (DCEG)? S-101PT9: Approved.
	NIWC	1.3.2	Coordinate Tuple	te	The order is defined by the CRS.	Add "... coordinates where the number and order of coordinates is identical to the axes of the coordinate reference system "	Applied.

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	NIWC	1.3.2	Display Priority	te	<ul style="list-style-type: none"> Applies to drawing instructions, not features A feature can have multiple drawing instructions, each with different priorities. The hierarchy only applies within a display plane – the display planes form their own hierarchy. 	Recommend remove (or update).	To be discussed. Suggest that the definition should be updated. S-101PT9: JP to supply definition. 23/11/22: Definition supplied – sourced from S-100 Part 9, clause 9-11.1.6.
	NIWC	1.3.2	ECDIS	te	I believe term “SENC” has been proposed to be dropped. See IMO NCSR 9/WP.6 See page 4.		To be discussed. S-101PT9: Replace throughout with “System Database”.
	PRIMAR	1.3.2	ECDIS Radar Priority SENC And throughout document	ed		Replace SENC with System database? Or considered too early for 1.1.0 version?	To be discussed. S-101PT9: See above
	DE	1.3.2	Geometric Primitive	ed		Non-decomposed -> non-decomposable	Not applied. I think this definition and the Note Has been taken directly from ISO. TBC. S-101PT9: Approved.
	GB	1.3.3	Terms and definitions		The ownness is on the data producer to determine the MaxDS	Maximum Display Scale The maximum display scale with which the data producer had intended the data to be displayed	Not applied. Consider that this has been covered by the added “intended” phrase.
	AU	1.3.2		te	Definition of Maximum and Minimum Display scale needs more work.	Some suggestions for discussion: maxDSscale – Optimum ratio between the level of detail and the accuracy of the information	Not applied. To be addressed in conjunction with ENC Scales and Data

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						provided. It is the recommended maximum MSVS for the data coverage. minDScale – Recommended smallest MSVS for the data coverage due to an elevated possibility of data cluttering and reduced data clarity and readability.	Load/Unload Sub-Group discussions. S-101PT9: Agreed to go with the revised definitions as supplied by the Sub-Group.
	NIWC	1.3.2	Overscale	te	See S-52 PresLib 10.1.10.1 Overscale Indication: <i>This overscale indication is required by IMO PS [3] whenever the display scale exceeds the compilation scale.</i>	“the largest -intended (maximum-optimum) display scale for the data”	Not applied. To be addressed in conjunction with ENC Scales and Data Load/Unload Sub-Group discussions. S-101PT9: No change required – Sub-Group as confirmed by PT.
	NIWC	1.3.2	Radar Priority	ed		Recommends deleting this entry.	Not applied. What is the justification for this proposal? S-101PT9: Not used anywhere in the document. Delete.
	NIWC	1.3.2	Radar Transparency	ed		Recommends deleting this entry.	Not applied. What is the justification for this proposal? S-101PT9: Not used anywhere in the document. Delete.
	NIWC	1.3.2	SENC	te	See comment above regarding SENC.	Amend “SENC” to “ System Electronic Navigational Chart ”.	To be discussed. S-101PT9: Replaced by “System Database”
	DE	1.3.2	Skin of the Earth	te		...primitive surface, completely covering...	Applied.
	NIWC	1.3.2	Symbol Size	ed		Recommends deleting this entry.	Not applied. What is the justification for this proposal?

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							S-101PT9: Not used anywhere in the document. Delete.
	NIWC	1.3.2	Text Label	ed		Recommends deleting this entry.	Not applied. What is the justification for this proposal? S-101PT9: Not used anywhere in the document. Delete.
	NIWC	1.3.2	Transparent Fill	ed		Recommends deleting this entry.	Not applied. What is the justification for this proposal? S-101PT9: Not used anywhere in the document. Delete.
	NIWC	1.3.2	Viewing Scale	te	Viewing scale is not solely related to features or dataset content.	“... linear dimensions of features of a dataset presented on in the display and the actual dimensions of the features represented of the dataset .”	Not applied. To be addressed in conjunction with ENC Scales and Data Load/Unload Sub-Group discussions. S-101PT9: No further change required – Sub-Group as confirmed by PT.
	NIWC	1.3.3	SENC	te	See comment above regarding SENC.		To be discussed. S-101PT9: Applied. See above – SENC removed from list.
	PRIMAR	1.6.3	1 st para Last sentence	ed	All cumulative clarifications must be included with the release of approved corrections revisions. Do not see the need for “corrections” in the sentence.		Applied.

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	PRIMAR	3	Alternate Title	Ed	Add S-101 to ENC to avoid confusion with S-57 ENC (which normally is referred to as ENC).		To be discussed. Not sure about this – and also if the alternate title is going to have S-101 added shouldn't this also be added to the title? S-101PT9: Not applied. "S-101" removed from start of Abstract.
	PRIMAR	3	Abstract	ed	S-101 could be used both for human and machine readable purposes. This could be emphasised in the abstract by replacing the word "efficiently" with "both, human and machine readable"		To be discussed. If this change is to be made suggest that the text read "... use that data efficiently within both human and machine-readable navigation systems". Am a little concerned though that this may be interpreted that S-101 will be "locked in" for use in MASS when it may need to be a separate PS. S-101PT9: Word "efficiently" removed.
	NIWC	3	Spatial Resolution	te		There are numerous proposed changes to this section that are based on the re-introduction of Optimum Display Scale – refer to NIWC track-changed document.	Not applied. To be addressed in conjunction with ENC Scales and Data Load/Unload Sub-Group discussions. S-101PT:9 Agreed to apply amendments as proposed by the Data Load/Unload and ENC Scales Sub-Group for Edition 1.1.0.
	NIWC	4.3.2	Feature types	ed	Given that this is described in the DCEG, recommend removal of subsections. If the		To be discussed. Agree that the detailed descriptions

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					subsections are retained, they should agree with the descriptions provided in the DCEG.		should be only in one document. S-101PT9: Agreed to reference corresponding clauses in Annex A (DCEG) only.
	NIWC	4.3.2.1.1	Skin of the Earth	te		Recommend this information is moved to the DCEG and referenced from here if desired. These are classification/encoding requirements.	To be discussed. S-101PT9: Specification moved to DCEG (new clause 2.5.1.1) and replaced with reference to this clause.
	GB	4.3.2.1.1	Skin of the Earth		S-101 model better represents the real world, e.g., Pontoon's float on depth areas, so pontoons should not be Skin of the Earth. This presents problems (time to correct) Conversion of S-57 to S-100 SoE features, however methods for removing Pontoons as SoE using CARIS are well advanced, and we do consider this a major problem.	No proposed change to SOE features	Not sure what this means (to be clarified). Is this suggesting that no change is proposed, or no change from S-57? S-101PT9: SOE Specification moved to DCEG. Further discussion required. Possibly revert to S-57 SoE features until the dual-fuel transition is completed?
	DE	4.3.2.1.1	Skin of the Earth	ge	Answer to comment from Thomas Richardson: Changes in skin of the earth features are an additional difficulty in conversion. Especially in the dual fuel period the data will not represent reality optimally. However, with the UNSARE/Unsurveyed Area workaround it can be automated and should not cause problems once dual fuel is gone. Then the data should be reviewed and Unserved Area features replaced where necessary.		No change proposed (tend to agree with this comment). S-101PT9: See above related comment – possible further action required.

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					This highlights the fundamental problem during dual fuel, that the best (easiest) way to deal with constant conversion from S-57 to S-101 or vice versa is to avoid feature classes and attributes that do not exist in one of the two standards. But this limits the data to the least common denominator and prevents S-101 data from using its full potential.		
	NIWC	4.3.2.2	Metadata features	te	This concept is directly carried forward from S-57 and is inconsistent with S-100. Recommend replacing with information associations.		Proposal required? To be discussed. S-101PT9: See related comment below.
	NIWC	4.3.2.2	1 st sentence	te	This describes an information type...		Agree, however what is the intention behind this comment? S-101PT9: See related comment below.
	NIWC	4.3.2.2	Metadata features	te	Although metadata features are described in the FC, the FC does not (currently) describe the relationships between meta features and the features to which the meta features apply. It should be mentioned here that the DCEG describes these implied/spatial relationships. Our opinion is that it would be better to define an explicit information association for each relationship. This has the added benefit of eliminating the need to encode the geometry of the meta feature (although the geometry could be retained for purposes of the pick report and/or the legend).		Proposal required? To be discussed. S-101PT9: NFA at this time. NIWC to submit a proposal to the S-100WG for re-modelling considerations (S-100WG7 – December 2022).
	PRIMAR	4.3.2.2		ed	The following non-descriptive information (rules) is included in this chapter: “Information defined by meta features override the default metadata values defined by the dataset	Suggest that the non-descriptive information (rules) on Meta feature is either: 1. Moved to another destination within this document or 2. Captured by the DCEG	Tend to agree. To be discussed. S-101PT9: Agreed to reference corresponding

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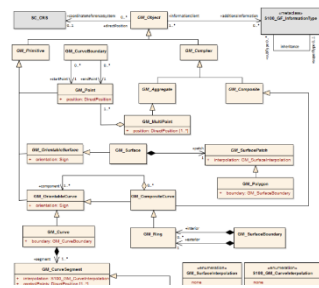
1	2	(3)	4	5	(6)	(7)	
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					descriptive records. Meta attribution on individual features overrides attribution on meta features". Establishing these rules at this location does not seem logical. For the other feature types in chapter 4.3.2 there are only descriptive information provided. Suggest that the non-descriptive information (rules) on Meta feature is either: 1. Moved to another destination within this document or 2. Captured by the DCEG		clauses in Annex A (DCEG) only.
	NIWC	4.3.2.2	1 st para, last sentence	te	Rather than overriding attributes of the feature, it would be more in line with S-100 principles to use an association to the appropriate information object.		Proposal required? To be discussed. S-101PT9: See above related NIWC comment.
	NIWC	4.3.3	2 nd sentence		An information association is not a feature relationship.	There are three types of defined feature relationships in S-101 ...	Agree. Applied.
	NIWC	(Former) 4.3.3.1	Entire	te	Refer to the above. An information association is not a feature relationship.	Move to new clause 4.3.5.1.	Applied. To be confirmed. S-101PT9: Approved.
	DE	4.3.4	Information types	ge		All different kinds of information types should at least be mentioned. -> Contact Details, Service Hours, Non-Standard Working Day, Nautical Information, Spatial quality (see DCEG 24.1 – 24.5)	Have chosen to only include references to the relevant clauses of the DCEG (as for earlier types). Perhaps there is an argument if this is accepted to remove clause 4.3.4.1? To be discussed. S-101PT9: Agreed to reference corresponding clauses in Annex A (DCEG) only.

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	NIWC	4.3.4.1	1 st para			Delete everything after 1 st sentence in this paragraph.	To be discussed in association with other comments for this clause. S-101PT9: Agreed to reference corresponding clauses in Annex A (DCEG) only. Figure removed.
	DE	4.3.4.1	Figure 4-5	te	See DCEG 24.5	qualityOfHorizontalMeasurement: only values 4 and 5 are allowed	Agree – needs to be updated. However, as for above comment, does this need to be in 2 places? Suggest remove this clause altogether. To be discussed. S-101PT9: Figure removed. See above.
	NIWC	4.3.4.1	Figure 4-5	te	This is inaccurate: <ul style="list-style-type: none"> The modelling of SpatialQuality has changed: <ul style="list-style-type: none"> add <i>spatialAccuracy</i> QoBD may have an association to SpatialQuality through QoBDComposition The relationships shown here are simplifications of those described in S-100 5.0.0 Figure 7-3 Geometry: 		IHO Sec: To be discussed in association with other comments for this clause. However, if this revised UML diagram is correct, suggest that it replace the current DCEG Figure 2.1. S-101PT9: Figure removed. See above.
	NIWC	(New) 4.3.5		te	See comments above for clause 4.3.3 and (former) 4.3.3.1.	Suggested new clause “Information relationships”.	Applied. To be confirmed. S-101PT9: Approved.
	NIWC	(New) 4.3.5.2		te		Suggested new clause “Information relationships”.	Applied. To be confirmed. S-101PT9: Approved.
	NIWC	4.3.6.1		te	NIWC: Recommend remove existing description and refer to S-100:	Replace entire clause with: S-101 defines each simple attribute type within the feature catalogue.	Tend to agree,. However am not sure that Table 5-A-13 is

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					As written: <ul style="list-style-type: none"> precludes use of URI/URL/URN, dateTime, and code list Is simplistic – doesn't describe UOM, constraints, etc.	Each type is defined as an instance of an S-100 Table 5-A-13 S100_FC_SimpleAttribute.	the best reference. Attribute types are also described in clause 2.4.2 of the DCEG. Perhaps this should be referenced? To be discussed. S-101PT9: Agreed to replace with reference to DCEG clause 2.4.2.
	DE	4.3.(6).2	Figure 4-6	ge	A side by side comparison of two ways to represent complex attributes is only useful if they both represent the same feature and its complex attributes. Otherwise the figure is just confusing. Differences in notation could well be caused by the different nature of the features and not by the way of representing the connections. Figure 4-6 feels like comparing apples to oranges.	Figure 4-6 should show different notations for the same feature and its complex attributes, not different features (even if they are similar).	Tend to agree. Raphael to supply updated UML? S-101PT9: Agreed to replace with reference to S-100 and DCEG. Figure to be removed.
	NIWC	4.4		te	This is only available via the S-100 10a encoding and will be "hidden" within the SENC. It is not part of the S-100 GFM and will not be available to portrayal or through the pick report.	Recommend this is provided as an attribute.	Needs a proposal. To be discussed. S-101PT9: NFA at this time. Proposal required.
	NIWC	4.4	3 rd para, last sentence	te		Recommend ECDIS support for multiple geometries is tested in S-164.	No action here for this document? Needs to be discussed by the S-164 Sub-Group. S-101PT9: NFA for S-101. To be discussed by the S-164 Sub-Group.
	NIWC	4.4	4 th para, 1 st sentence	te	Requirement can't be applied to features associated with MultiPoint geometries (Sounding and DepthNoBottomFound).		Do not think this is an issue as sounding groups are simply a method of "compressing" the data and have no relationship to the

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							"real world". Suggest no action required. S-101PT9: NFA at this time.
	NIWC	4.5 – 4.7				Fundamental changes suggested, including the re-introduction of optimumDisplayScale. Refer to NIWC track-changed version of the document for the full suggested range of changes and associated comments.	To be discussed. S-101PT9: Agreed to apply amendments as proposed by the Data Load/Unload and ENC Scales Sub-Group for Edition 1.1.0. Re-introduction of optimumDisplayScale rejected. Full testing required.
	GB	4.5 to 4.7			Please see attached .ppt (this is still a work in progress and not been peer reviewed) I think it uses a more familiar (port approach) when considering complexities of 4.5 to 4.7 in the PS. Clauses 4.5-4.7 are very hard to visualise and interpret, so I hope more diagrams, like those in the .ppt may be considered. The scope of this document should also include its use as an aid to training, and its relationship to S-57 (particularly compilation scale) should not be removed, as this is a starting point in the understanding of conversion to DataCoverage. I can't see a problem with including a .ppt as an index when describing complex scenarios.	Consider a .ppt to demonstrate 4.5 – 4.7 to PT9 and as an eventual annex in PS 1.1	Refer to associated GB .ppt presentation. To be discussed. S-101PT9: Agreed to apply amendments as proposed by the Data Load/Unload and ENC Scales Sub-Group for Edition 1.1.0. Re-introduction of optimumDisplayScale rejected. Full testing required.
	NIWC	4.5.2	2 nd para	te		Suggests removing this paragraph.	Justification? Is there any harm in keeping this? To be discussed. S-101PT9: NFA at this time. Proposal required.

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	FR	4.5.2	Last para	te		Further tests required to try and solve this issue in S-101.	S-101PT9: NFA at this time. Full testing required.
	NIWC	4.5.3	1 st bullet	te		Suggests removing this bullet.	Justification? Is there any harm in keeping this? To be discussed. S-101PT9: NFA at this time. Proposal required.
	GB	4.5.3	Data Coverage Rules	te	<p>Third Bullet point</p> <ul style="list-style-type: none"> Data Coverage features from different datasets may overlap if they have differing maximum display scales. <p>Fourth Bullet point</p> <ul style="list-style-type: none"> Datasets may overlap, however there must be no overlapping Data Coverage features of the same maximum display scale <p>Bullet points 3 and 4 are describing the same scenario.</p> <p>Fig 4.7 demonstrates that it's not only the MaxDS that shouldn't overlap, but the Display Scale Ranges should not overlap, with no gaps or overlaps between.</p>	<p>Amend Third Bullet point</p> <ul style="list-style-type: none"> Data Coverage features from different datasets covering the same geographical area, must have non overlapping, continuous Display Scale Ranges (see fig 4.7) <p>Exception: In areas of agreed National Data Limits, where, if it is difficult to achieve a perfect join, an overlapping buffer zone of up to 5 metres may be used. For this situation. There must be no gaps in data between the adjoining datasets.</p> <p>Delete Fourth Bullet Point</p> <p>Amend diagram 4.7 to show the largest scale at the bottom, in agreement Table 3-1 – ENC Minimum Display and Maximum Display Scales.</p> <p>Dataset 1&2 MinDS 44,999 Dataset 3 MinDS 179,999 Dataset 4 MinDS 699,999 Otherwise, they overlap with corresponding MaxDS.</p>	<p>Changes applied in general as suggested. To be discussed.</p> <p>S-101PT9: Changes tentatively approved. Final changes agreed with SG Lead during S-100WG7.</p> <p>S-101PT9: Figure to be updated (Sub-Group Lead).</p>
	NIWC	4.5.3	3 rd bullet	te	Datasets will always be loaded/displayed in their entirety. A dataset primarily at 1:45,000 with a channel at 1:12,000 should not obscure, be		To be discussed in association with the above GB comment.

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					obscured, or be drawn “side-by-side” with a dataset at 1:22,000.		S-101PT9: Changes tentatively approved Final changes agreed with SG Lead during S-100WG7.
	NIWC	4.5.3	Figure 4-7	te	Add optimum display scale.		To be discussed. S-101PT9: Re-introduction of optimumDisplayScale rejected. Full testing required.
	NIWC	4.5.3	4 th bullet	te	Reflects the fact that the dataset must be shown in its entirety. [optimumDisplayScale] Indicates the best scale within the dataset, particularly for auto-scaling in route monitoring.	<ul style="list-style-type: none"> When a dataset has multiple Data Coverage features: <ul style="list-style-type: none"> The minimum display scales must all be the same; The maximum display scales must all be the same; and The optimum display scales may be different. 	This is predicated on the re-introduction of optimumDisplayScale. To be discussed. S-101PT9: Re-introduction of optimumDisplayScale rejected. Full testing required.
	NIWC	4.5.3	5 th bullet	te		Regardless of the outcome of optimumDisplayScale discussions, think there still should be a statement as to what the maximum display scale for the dataset should be.	To be discussed. S-101PT9: NFA at this time. Proposal required.
	NIWC	4.5.3	Figure 4-8	te		<ul style="list-style-type: none"> NIWC: Add optimum display scale (1:12k, 1:12k, and 1:22k) Remove dataset scale attributes All data coverage min/max scales should match (1:8k and 1:45k) 	To be discussed. S-101PT9: Re-introduction of optimumDisplayScale rejected. Full testing required.
	NIWC	4.5.4		te	These two requirements beg the question of why? It should be explained here. “In order to meet/minimize/limit/etc. ...” Note that the exchange set can contain an arbitrary number of datasets / catalogues / support files, and		Tend to agree. Proposal required. To be discussed. S-101PT9: NFA at this time. Proposal required.

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					it's the exchange set size which determines the burden placed on the transfer mechanism. If the goal is to limit the transfer size, then the size of the exchange set should be limited.		
	DE	4.6		ed	Examples would be helpful to understand this part of the document better.	Add proposed additional figure/table: Alternative_Figures_DEproposal.docx (follows this Table)	Have added an edited version of the Table as a placeholder. To be discussed. S-101PT9: Change tentatively approved. S-100WG7: Agreed not to include table for Edition 1.1.0.
	GB	4.6	Display Scale Range		The first paragraph should be moved to Data Coverage Rules, because the Display Scale Range is fundamental to the Data Coverage Rules.	Move to 4.5.3 after bullet point in italics <ul style="list-style-type: none"> <i>The data boundary of the base dataset is defined by the extent of the Data Coverage features and must be contained within the bounding box.</i> A scale range of a dataset is used to indicate a range of scales between which a producer considers the data is intended for use. (See clause 4.7 for how datasets are to be loaded and unloaded within a navigation system.) The smallest scale is defined by the minimum display scale and the largest scale by the maximum display scale. These scales must be set at one of the scales specified in clause 3 (spatial resolutions). 	Perhaps clause 4.6 should be a sub clause of 4.5? Then perhaps there could be some re-shuffling to better order the specification. To be discussed. S-101PT9: Reference to clause 4.6 added to 3rd bullet at clause 4.5.3.

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	NIWC	4.6	1 st para	te		Added optimum display scale.	To be considered as part of optimumDisplayScale discussion. Not yet applied. S-101PT9: Re-introduction of optimumDisplayScale rejected. Full testing required.
	NIWC	4.6	1 st para	te		Suggests replacing "clause 3 (spatial resolutions." At end of paragraph with: Table 3-1, and their relationship to one another must be: maximum display scale <= optimum display scale <= minimum display scale; where maximum display scale <> minimum display scale	All these comments related to clause 4.6 need to be considered holistically as part of deliberations, including in this case the reference to optimumDisplayScale. Not yet applied. S-101PT9: Re-introduction of optimumDisplayScale rejected. Full testing required.
	AU	4.6	2 nd paragraph	te	Loading/Unloading behaviour when zooming out not supported. When gaps between minimum display scale and maximum display scale exist between overlapping datasets, the preference should be to retain the larger scale dataset for longer instead of over scale the smaller scale dataset to 'fill the screen'.	Amend from: When the mariner's selected viewing scale (MSVS) is smaller than the value indicated by minimum display scale , features within the Data Coverage feature are not displayed, except where the SENC does not contain a dataset covering the area at a smaller scale, in which case the dataset will be displayed as long as the MSVS is larger than twice the minimum display scale . To When the mariner's selected viewing scale (MSVS) is smaller than the value indicated by minimum display scale , features within the Data Coverage feature must be displayed until a	All these comments related to clause 4.6 need to be considered holistically as part of deliberations. S-101PT9: Change not applied. S-100WG7: Amended wording for clause agreed.

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						smaller scale overlapping Data Coverage can be loaded without triggering the over scale pattern/Indication (MSVS =< 2 x maximum display scale). Where the SENC does not contain a dataset covering the area at a smaller scale, the dataset will continue to display in order to 'fill' the ECDIS window. The use of scale minimum attribute values on features is critical to facilitate clarity and readability of data, particularly when displayed at scales < minimum display scale .	
	NIWC	4.6	2 nd para	te		Reword paragraph as follows: When the MSVS is larger than the value indicated by optimum display scale , the overscale indication, in the form of an overscale factor and pattern covering the area that is overscale, must be shown. When at own ship's position a Data Coverage with a larger optimum display scale is available, an indication is required and must be shown on the same screen as the chart display.	All these comments and suggested changes related to clause 4.6 need to be considered holistically as part of deliberations. S-101PT9: Re-introduction of optimumDisplayScale rejected. Full testing required.
	NIWC	4.6	2 nd para	te	"When the MSVS is larger than twice the value indicated by maximum display scale , the overscale indication, in the form of an overscale factor <i>and pattern covering the area that is overscale</i> , must be shown." Doesn't match S-52 requirement – the pattern should only be shown on areas used to "fill-in" the display. The pattern should not be shown on areas the mariner intentionally overscales.		Is this really the intent in S-52? S-101PT9: NFA at this time. Full testing required.
	DE	4.6	2 nd paragraph	ed	This part of the document is quite complex and contains lots of similar terms like 'minimum display scale' and 'maximum display scale' along with 'small' and 'large', which is already confusing (small scale =	There are three distinct points mixed together in one paragraph. For a better understanding please separate the paragraph as follows: 1. part: When the mariner's selected viewing scale (MSVS) is smaller than the value indicated	All these comments related to clause 4.6 need to be considered holistically as part of deliberations.

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					big scale number). The paragraph refers to three distinct points without properly setting them apart. 1. part: user zoomed out too much (smaller than min. displ. sc. but not as far as more than twice min. displ. sc.) -> In this case no notification is needed because it is obvious to the user, that the data is not meant to be displayed at this scale (everything is lumped together and way too small). (If the user zooms out more than twice min. displ. sc. nothing will be shown?) 2. part: user zoomed in too much (larger than twice max. displ. sc.) -> In this case a warning is needed because it is not obvious for the user that the data does not contain enough information to be viewed at this scale. 3. part: an index frame to indicate there is data available with more detailed information (comparable to index frames in paper charts)	by minimum display scale , features within the Data Coverage feature are not displayed, except where the SENC does not contain a dataset covering the area at a smaller scale, in which case the dataset will be displayed as long as the MSVS is larger than twice the minimum display scale . 2. part: When the MSVS is larger than twice the value indicated by maximum display scale , the overscale indication, in the form of an overscale factor and pattern covering the area that is overscale, must be shown. 3. part: When at own ship's position a dataset with a larger maximum display scale than the MSVS is available, an indication is required and must be shown on the same screen as the chart display.	S-101PT9: Change not applied. S-100WG7: Amended wording for clause agreed.
	GB	4.6	Display Scale Range		This second large paragraph needs to be separated, there is too much information for one paragraph. It is also referring to when data is becomes visible to the mariner (MSVS) and is better placed at 4.7. When the mariner's selected viewing scale (MSVS) is smaller than the value indicated by minimum display scale , features within the Data Coverage feature are not displayed, except where the SENC does not contain a dataset covering the area at a smaller scale, in which case the dataset will be displayed as long as the MSVS is larger than twice the minimum display scale . When the MSVS is larger than twice the value indicated by maximum display scale , the overscale	Place at 4.7 When the MSVS is smaller than the minDS features are not displayed (and indicate 'larger minDS is available') Unless the SENC <u>does not</u> contain a dataset at a smaller scale, in which case the dataset will remain displayed (if the MSVS is larger than twice the minDS) When the MSVS is larger than twice the maxDS an Overscale indication should be displayed If a larger minDS than MSVS (in ships own position) is available an indication 'larger minDS is available'.	All these comments related to clause 4.6 need to be considered holistically as part of deliberations. S-101PT9: Change not applied. S-100WG7: Amended wording for clause agreed.

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					indication, in the form of an overscale factor and pattern covering the area that is overscale, must be shown. When at own ship's position a dataset with a larger maximum display scale than the MSVS is available, an indication is required and must be shown on the same screen as the chart display.	<i>In ships own position? if vessel is advancing towards a cell that is larger, it will not be shown until the ship is upon it?</i> <i>Suggest in SENC rather than ships own position</i> If a larger minDS than MSVS (in the SENC) is available an indication 'larger minDS is available'.	
	NIWC	4.7	1 st sentence	ed		Suggests removing text "based on producer defined dataset display scales (minimum and maximum)" from the 1 st sentence of the clause.	Applied. To be discussed. S-101PT9: Approved.
	NIWC	4.7		te		New paragraph added. Best scale dataset(s) should always be loaded for safety checking of the route plan and OS.	Applied. To be discussed. S-101PT9: Approved.
	NIWC	4.7		te		New paragraph added. S-52 ed 6.1.1 clause 3.3.1.2.	Applied. To be discussed. S-101PT9: Approved.
	NIWC	4.7.1		te		Remove or move 4.7.1 to Annex D. New alternate text for this clause proposed – refer to NIWC track-changed version.	To be discussed. S-101PT9: Change not yet applied. S-100WG7: Algorithm included at Annex D. Reference to Annex D included at 4.7.1.
	DE	4.7.1	1 st bullet point	ge	The following scenario is most obvious for areas where data sets with identical max ds may overlap (adjoining national data limits), but it also applies to all scenarios of data set overlap. The described method of creating a display order will prioritize data with a smaller min ds in the display order (covering data with larger min ds, because it is drawn later). Is that intended? Should not data with potentially more information/details (larger min ds) be displayed when possible (drawn later and therefore covering data with smaller min ds)?		To be discussed. S-101PT9: NFA at this time. Full testing required.

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	DE	4.7.1	3 rd bullet point	ge	How does this list (LIST_DC_S) account for MSVS that are outside of the originally intended display scale of a data coverage feature? In some cases those will need to be displayed for lack of other (more appropriate) data. Is there a second list, that contains all entries from LIST_DC minus the ones that formed LIST_DC_S, that match the conditions (for scale numbers) "MSVS < max ds <= 2*MSVS" and "MSVS < min ds <= 2*MSVS" for filling gaps in the display where no MSVS appropriate data sets are available?		To be discussed. S-101PT9: Change not yet applied. S-100WG7: Algorithm included at Annex D. Reference to Annex D included at 4.7.1.
	7Cs	4.7.1	3 rd bullet	te	maximum display scale > MSVS < minimum display scale	maximum display scale > MSVS > minimum display scale	Applied. To be confirmed. S-101PT9: Approved
	DE	4.7.1	3 rd bullet point	te	If referring to the scale itself then it should be: max ds > MSVS > min ds. If it refers to the scale number, then it should be: max ds < MSVS < min ds. To avoid confusion maybe the wording could be amended to clarify which numbers are referred to.	Either "max ds > MSVS > min ds" or "max ds < MSVS < min ds" + Clarification which numbers are referred to (scale or scale number)	See above. Agree that this needs to be better clarified. S-101PT9: Change not applied S-100WG7: Algorithm included at Annex D. Reference to Annex D included at 4.7.1.
	NIWC	4.7.2	Entire	te		Significant changes suggested.	Needs to be considered holistically as part of deliberations. No changes applied as yet. S-101PT9: Agreed to apply amendments as proposed by the Data Load/Unload and ENC Scales Sub-Group for Edition 1.1.0. Re-introduction of optimumDisplayScale

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							rejected. Full testing required.
	DE	4.7.2	1 st bullet point	ed	If MSVS is considered for dataset display order the text should be changed as proposed.	LIST_DC -> LIST_DC_S	Tend to agree, however to be confirmed. S-101PT9: Approved
	IHO Sec	4.7.2	Figure 4-9	ed	Clause 4.5.3 states that where a dataset has multiple DataCoverage features the minimumDisplayScale in each DataCoverage must be the same (assuming the Figure is associated with the bullet immediately preceding?).	Amend minimumDisplayScale values for each data coverage at the top of the Figure to the same value (350000).	I find this Figure to be confusing. There needs to be a better relationship established between the Figures and the associated text in the clause (references to Figure numbers in the text); then the Figures rationalised. To be discussed. S-101PT9: NFA at this time.
	7Cs	4.7.2	Figure 4-9	te	Condition: maximumDisplayScale <= MSVS <= minimumDisplayScale	In clause 4.6: Twice maxDS, twice min.DS	Agree. To be discussed. S-101PT9: Change not yet applied. S-100WG7: Clause restructured.
	7Cs	4.7.2	Figure 4-9	ed	Minimum displayScale	minimumDisplayScale	Agree: To be applied. S-101PT9: Change not yet applied. S-100WG7: Clause restructured.
	DE	4.7.2	Fig. 4-9	ed	The original Fig. 4-9 is very confusing as it does not match the methods described in 4.7.1 and 4.7.2 (maybe due to the above mentioned issues).	Replace Fig. 4-9 with proposed alternative figure/table: Alternative_Figures_DEproposal.docx (follows this Table)	See proposed replacement Figure (table) below. To be discussed. S-101PT9: Change not yet applied. S-100WG7: Clause restructured.
	7Cs	4.7.2	Figure 4-10	ed		- Why X, Y, Z and 1, 2, 3? - Use always same size for numbers	Consider all Figures in this clause need review so as to

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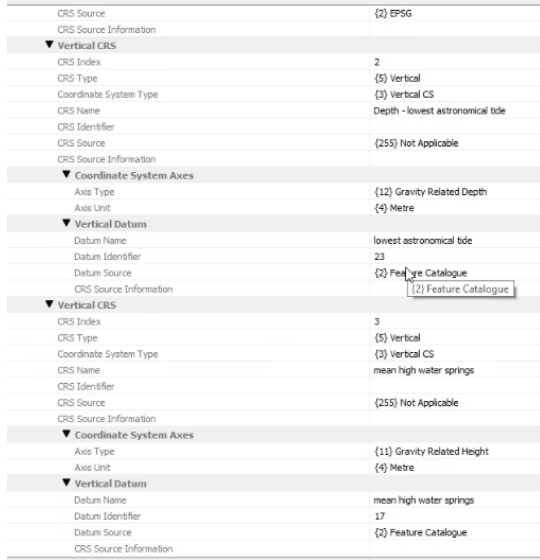
1	2	(3)	4	5	(6)	(7)	
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							establish a better relationship. To be discussed. S-101PT9: Change not yet applied. S-100WG7: Clause restructured.
	LR	5	?	te	In S-57 there were both a sounding datum and a vertical datum. When reading clause 5 it only refers to Vertical CRS for Soundings. Why is there no reference to Vertical CRS for Heights? Why does not S-101 dataset imply the encoding to the Vertical CRS for heights? It would be logical to have them both in one place. We know we have this value in meta data .xml file, however, it will be logical to have description of all CRS in one place.	Add a clause 5.4 Vertical Datum for heights. Describe the encoding of CRSH, CSAX and VDAT fields with corresponding sub-fields: CRSH-CRST =5: Vertical CRSH-CSTY =3: Vertical CSAX-AXTY =11: Gravity Related Height VDAT-DTNM and DTID values of the corresponding default datum They must define a default vertical datum of the dataset which should correspond to a value of S100_DatasetDiscoveryMetadata/verticalDatum And be applied to “altitude of spot heights, height contours, landmarks”	Tend to agree. There should be something in here about encoding vertical datum. To be discussed. S-101PT9: No change required. The only features in S-101 that have a vertical CRS are soundings and DepthNoBottomFound. All other vertical datums are defined by attribution. Applies to all below comments for which it was decided NFA.

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					Below you can see how we imagine the encoding: 		
	7Cs	5.2	First line	ed	EPSG: 4326	EPSG:4326	Applied.
	NIWC	5.3	Entire	te		This should probably be a sub-section under a more general section applying to all vertical CRS's (soundings and heights).	To be discussed in relation to the above comment from Lloyds Register. S-101PT9: No change required.
	NIWC	5.3	Para 1, 1 st sentence	te	This requirement should apply to all vertical CRS, but is in a section specific to soundings.		Agree. This tends to support the above comment that there should be a holistic clause addressing all CRS (sounding and vertical). To be discussed.

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							S-101PT9: No change required.
	NIWC	5.3	Para 1, 2 nd sentence	te	Technically, this depends on the value of AXTY in the CSAX component. There should be a requirement that AXTY corresponding to Vertical CRS's for soundings must be 12 (gravity related depth – positive down), while AXTY corresponding to Vertical CRS's not for soundings must be 11 (gravity related height – positive up).		Agree. However no suggested change included. To be discussed. [Note additional NIWC comments for Tables 5-1 and 5-2.] S-101PT9: No change required.
	DE	5.3		ge		Add reference to where the general encoding of CRS is presented. -> B-5.1.9 - B-5.1.12	Agree. Draft changes included for discussion. S-101PT9: Approved
	7Cs	5.3	Table 5-1 First row CSID	ed	Record Name (15 = Coordinate Reference System Identifier)	Record Name (15 = Coordinate Reference System Identifier) (remove space)	Applied.
	NIWC	5.3	Table 5-1 Row AXTY		This is ok for soundings, but heights should use 11.		Agree. To be discussed with previous NIWC comment. S-101PT9: 7Cs (Holger) to check. S-100WG7: All heights in S-101 are related to attributes. No change required.
	NIWC	5.3	Table 5-2 Row AXTY		This is ok for soundings, but heights should use 11.		Agree. To be discussed with previous NIWC comment. S-101PT9: 7Cs (Holger) to check. Tom R to provide diagram? S-100WG7: All heights in S-101 are related to attributes. No change required.

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	7Cs	7	Second line	ed	S-101 Feature Catalogue. This Guide is	S-101 Feature Catalogue. This Guide is (remove space)	Applied.
	DE	8.5		ge	Has a decision been made of how many different versions will be supported at once?		Not sure about this one. Is there something about this in S-98? S-101PT9: Replace existing text with reference to S-98.
	NIWC	8.5	Entire	te	Does this information add value?	Recommend delete. If retained, it could use more detail – new versions of the FC and/or PC may be released independent of changes to the PS – for example, in the case of corrections.	To be discussed. S-101PT9: Replace existing text with reference to S-98.
	7Cs	9.1	Second to last paragraph	ed	defined in S-100. This model reflects	defined in S-100. This model reflects (remove space)	Applied.
	7Cs	9.1	Second to last paragraph	ed	marine navigation systems. The Portrayal Catalogue	marine navigation systems. The Portrayal Catalogue (remove space)	Applied.
	NIWC	9.2	Portrayal Catalogue structure	te	This is out of date wrt S-100, and we just said it's defined in S-100.	Delete.	Agree. Have amended the clause to include more specific references in S-100 Part 9 – for consideration. S-101PT9: Approved.
	LR	10.1.2 And B-5.1.2	1 st paragraph	te	The values of the DSSI-CMFZ sub-field in prod Spec and in DCEG the clauses 11.3.1 and 11.8.1 must match. Now Spec indicates value {10} but the latest version DCEG uses value 100	Set identical value for both documents.	Refer Paper S-101PT8-22 and Action S-101PT8/33. DCEG value amended to {10}.
	RM	11.1	Figure 11-1	te		Add a sentence about what it means in the context of S-101 . Refer to it and/or at least some of its components in clause 11.2, again in the context of S-101.	S-101PT9: Remove Figure 11-1 and add reference to S-100 Part 17.

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	PRIMAR	11.2 11.2.1	2 nd sentence		“Each Exchange Set consists of one or more ENC datasets with an associated XML metadata file...” Does this mean that an associated XML metadata file must be created for all dataset files?	If yes – It should be added to 11.2.1 as a mandatory element for clarification. One could argue that it is already covered by 11.2.1 bullet 1: “ENC datasets – ISO/IEC 8211 encoding of features/attributes and their associated geometry and metadata ”. However, a clarification of the associated XML metadata file as mandatory would be helpful. If no – change sentence to: Each Exchange Set consists of one or more ENC datasets, optionally with an associated XML metadata file,...	To be discussed. S-101PT9: Amended to state that the associated XML metadata file is optional. Additional changes agreed (Primar, IC-ENC, IHO Sec) at S-100WG7.
	PRIMAR	11.2			Following up from the comment above related to the associated XML Metadata file: Should this file have a defined naming convention?	If yes – refer to S-100 5.0.0 Part 10c-12 for HDF5 encoding where the naming convention for associated Metadata files are: MD_<data file base name>.XML	To be discussed. S-101PT9: Amended to state that the associated XML metadata file is optional. Additional changes agreed (Primar, IC-ENC, IHO Sec) at S-100WG7. See new clause 11.5.
	NIWC	11.2	Other Delivery Information – 1 st para	te		Delete – delivery of files on physical media is not required.	Does this specifically infer physical media? Am not sure. To be discussed. S-101PT9: See below.
	IC-ENC	11.2, 11.2.1, 11.2.2	Last 7 para's and entire sub-clauses	te		Propose simplify by referring to S-100 Part 17 directly and not repeating these rules here.	S-101PT9: Refer to S-100 Part 17. Update the section. Applied.
	7Cs	11.3.1	4 th bullet	ed	deleted from the system. The encoding structure	deleted from the system. The encoding structure (remove space)	Applied.

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	LR	11.3.1	Add paragraph	te	The information about name and geographic area consistency base dataset and its updates are missing. The S-57 prod Spec contains the following sentence: “Update cell files have the same name as the original base cell file, with an extension number greater than or equal to 001. They cover the same geographical area as the base cell file to which they apply”. Will S-101 exchange set support update dataset with different names? Can they extend Data Coverage area of Base cell?	Add the following sentences to the end of clause: <i>Update dataset files have the same name as the Base dataset file, with an extension number greater than or equal to 001. They are covered by the geographical area of the Base dataset to which they apply.</i>	Original comment was to insert this new guidance at clause 11.3.2. Have chosen to add here to be consistent with guidance for New Edition above. To be discussed. S-101PT9: Approved, however clarification to be added for the extension. This will be enough for Edition 1.1.0.
	AU	11.3.2; 11.4.1		te	The use of 4 characters (CCCC) to express the country code of a producer country, when it is currently defined in S-62 as a two-character combination, does not make a lot of sense. It is true that ISO has a three-letter code to uniquely identify countries (and many members use it to number their paper products) but the IHO did never recommend their use in the charting specs.	Consider interpreting S-100 guidance on the use of a country code (characters YYYY in S-100) as any number of characters as registered in the IHO Registry. Therefore, as the IHO Registry has 2-letter country/private organisations codes, S-101 datasets would have 2 characters allocated for this purpose, not four (CC instead of CCCC). <u>For example:</u> 101AU_P_SYD01 instead of 101AU00_P_SYD01 Another (controversial we think) option is to establish, from scratch, a new dedicated list of country codes for S-100 products and allow countries and organisations to register a code using 2-4 characters. Once created, any S-100 related file name, etc. that requires a country code populated, must use one from that list and there should not be any additional requirement to encode 'extra' zeros to get to 4 characters.	It has been determined that the list of 2-character codes that can be assigned will not satisfy future requirements. Suggest retain as is. S-101PT9: No change required for Edition 1.1.0.
	IHO Sec	11.3.2	2 nd bullet	te	Needs to be discussed (S-100WG) as what is described here may not necessarily be the way that		To be discussed.

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					this should work. May need to be a look-up table generated from the GI Registry?		S-101PT9: Amended “must” to “may”.
	7Cs	11.3.2	3 rd bullet	ed	unique file name. The following characters	unique file name. The following characters (remove space)	Applied.
	PRIMA R	11.3.2			Dataset file naming is expressed with numbers and upper case letters: 101CCCC00000000000000.EEE Does this mean that only upper case letters are allowed in the dataset filename?	If yes – add following sentence to 3 rd bullet: Characters must be upper case. If no: - add following sentence to 3 rd bullet: Characters may be lower or upper case.	Have chosen to go with upper case only, and have simply added some bracketed text to resolve this comment. To be confirmed. S-101PT9: Approved.
	LR	11.3.2	3 rd bullet	te	If the use of characters eight through seventeen is optional, does this mean that these characters may not exist at all? For example: Is the dataset name 101GB00.000 valid?	Add clarification about name length. How many characters must a name have?	This was originally the intention behind the phrase “to the maximum”. However, is this is not clear enough have added an additional sentence for consideration. To be discussed. S-101PT9: Approved.
	PRIMA R	11.3.3	Update comment		11.3.3 describes a number of parameters encoded in the data and how they are used. The parameter “Update comment” indicates the possibility to encode a description of the change introduced by the update. Where is the Update comment encoded?	Propose to remove if Update comment cannot be encoded. Would also assume that the Update Information feature and specifically the update description attribute would cover such information.	To be discussed. S-101PT9: Agreed to remove. Additional action: Review the need for Update Number in the ISO 8211 encoding (for Edition 1.2.0?).
	DE	11.3.3	7 th paragraph	ed		message = method?	The word “message” is not used anywhere in the document. Have therefore applied this change. To be confirmed.

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							S-101PT9: Approved.
	AU	11.4		Ed	Unnecessary use of brackets.	Remove brackets from last sentence of the first bullet point: (Extensible mark-up language (XML) supports UTF-8 character encoding.)	Applied. However not sure why the brackets were included in the first place. To be confirmed. S-101PT9: Approved.
	7Cs	11.4	1 st bullet		UTF-8 character encoding.) (TXT), (XML), (HTM) .	UTF-8 character encoding.) (TXT), (XML), (HTM) . (remove space)	Applied.
	7Cs	11.4	2 nd bullet	ed	TIFF (6.0 specification) (TIFF).	TIFF (6.0 specification) (TIFF) . (remove space)	Applied.
	IHO Sec	11.4.1	2 nd bullet	te	Needs to be discussed (S-100WG) as what is described here may not necessarily be the way that this should work. May need to be a look-up table generated from the GI Registry?		To be discussed. S-101PT9: Amended “must” to “may”.
	PRIMA R	11.4.1			Support file naming is expressed with numbers and upper case letters: 101CCCC00000000000000.EEE Does this mean that only upper case letters are allowed in the support filename?	If yes – add following sentence to 3 rd bullet: Characters must be upper case. If no: - add following sentence to 3 rd bullet: Characters may be lower or upper case.	Have chosen to go with upper case only, and have simply added some bracketed text to resolve this comment. To be confirmed. S-101PT9: Approved.
	7Cs	11.4.2		ed	Figure 11-2, 11-3, 11-4, 11-5	Keep always introductory text and figure together	Applied.
	LR	11.4.2	2 nd paragraph	te	The mechanism of replacement of a support file is not clear. What should be included in updating Exchange set if a support file is just replaced? We should include new support file and Exchange Catalogue with discovery metadata for the support file. However, no dataset update has been created since features that refer to the support file were not	Add a clarification about how to create Update dataset to reflect replacement of the support file.	This needs a fully worked scenario that describes the requirement. To be discussed. S-101PT9: No change for Edition 1.1.0. Lloyd’s Register to submit proposal to TSM (March 2023) for

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					changed. It contains a file named according to DCEG but not MRN. We just replaced the support file while its name was not changed. Consequently, there is no update dataset in the Exchange set. This contradicts the 11.2.1 clause. Should we reflect changes of support file substance by updating features in dataset? If so, we probably, need to create fake update records of attributes changes that refer to the support file. Or we need to add Update information meta feature linked with features that refer to support file.		consideration for Edition 1.2.0.
	NIWC	12.1	Fig. 12-3	te		Recommend delete and reference S-100 5.0 Figure 17-7. Note S-101 specifics in the UML tables below.	Even though it will require additional maintenance and alignment, consider that it is better to have all this information in the PS as it is important and will save readers from having to go and interpret another Figure in another document and then work out the different multiplicities from the Tables below. To be discussed. S-101PT9: Agreed to remove for Edition 1.1.0.
	DE	12.1	Fig. 12-3	ed		Replace Fig. 12-3 proposed alternative figure/table (follows this Table)	To be discussed. S-101PT9: Agreed to remove for Edition 1.1.0.
	NIWC	12.2	Last para	te	It's hard to see how these tables differ from those provided in S-100 without doing a side-by-side comparison.	Recommend the UML tables either: <ul style="list-style-type: none"> Highlight the changes from S-100 using a different background color, italic text, or some other method 	Have included a statement that the restricted multiplicities are noted in the Remarks column of the tables. To be discussed.

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						<ul style="list-style-type: none"> Only show entries that are different then S-100 	S-101PT9: Not for Edition 1.1.0. Perhaps for Edition 1.2.0 if still considered useful.
	NIWC	12.1.1	1 st sentence	te	The file is XML, the structure is defined in XML Schema Definition Language. Don't think either is worth mentioning here.	Recommend remove.	Applied. To be confirmed. S-101PT9: Approved.
	7Cs	12.1.1	1 st paragraph	ed	XML Schema language. The Exchange Catalogue	XML Schema language. The Exchange Catalogue (remove space)	Applied.
	DE	12.1.1	Table rows 2,3 and 5	ed	in accordance with other tables on later pages + on basis of Fig. 12-3	Add "0..1 multiplicity in S-100 restricted to 1 in S-101" in column "Remarks"	Applied.
	7Cs	12.1.1	Table, row 3	ed	S100_CataloguePointofContact	S100_CataloguePointOfContact	Applied.
	DE	12.1.1.2	Row 3	ed		Description: edition number = phone number	Applied.
	LR	12.1.1.2	Attr. Phone	ed	Looks like there is a misprint in Description of cell.	Replace: "The edition number of this Exchange Catalogue" With: "The phone number of the organization"	Applied.
	7Cs	12.1.2	Table, row 3	ed	two named locations etc	two named locations etc. (add '.' after etc)	Not applied. IHO convention is to not include a period at the end of an abbreviation.
	7Cs	12.1.2	Table, row 10		False Indicates the resource is not copyrighted	False indicates the resource is not copyrighted (lower case 'i')	Applied.
	DE	12.1.2	Rows "classification" + "purpose"	ed	in accordance with other tables on other pages + on basis of Fig. 12-3	Add "0..1 multiplicity in S-100 restricted to 1 in S-101" in column "Remarks"	Applied.

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	AU	12.1.2	Table, row 13	ge	<p>The use of the metadata attribute notForNavigation is somehow controversial.</p> <ul style="list-style-type: none"> If we are to accept TRUE values, then this should interact with the navigation systems and trigger a pop up message when loading the dataset and an indication on the screen when the product is displayed. <p>Message example</p> <p><i>Product 101AU_SYDNEY_ has been identified as 'NOT FOR NAVIGATION' by the data producer and therefore it can only be used for other purposes (i.e training, planning).</i></p> <ul style="list-style-type: none"> If we are not going to accept TRUE values then the question is – what's the point of having this attribute in the first place?? 	Consider different use cases and discuss the possibility of issuing Warnings when loading and using the dataset in an ECS/ECDIS.	<p>I struggle to reconcile notForNavigation with the PS name Electronic <u>Navigational</u> Chart Product Specification.</p> <p>To be discussed.</p> <p>S-101PT9: No change required. Some ENC datasets such as the ECDIS Chart 1 will be not for navigation.</p>
	AU	12.1.2; 12.1.2.2		te	<p>A dataset can have more than one DataCoverage feature.</p> <p>In the S100_DatasetDiscoveryMetadata section (12.1.2) there's an entry for the attribute dataCoverage, which is mandatory to populate and it has been restricted to only one instance. Does this mean that only one S100_DataCoverage metadata entry can be completed?</p> <p>What happens with the other dataCoverage features the dataset may have encoded?</p> <p>What's the practical use (if any) of this metadata in S-101???</p>	Review multiplicity of dataCoverage . Explain practical use of DataCoverage metadata in general.	Change was incorrectly applied. Has been reverted back to 1..*.
	TC	12.1.2 S100_DatasetDiscovery Metadata	dataCoverage	te	<p>The multiplicity in this table was changed to 1 from 1..*. The UML diagram Figure 12-3 still shows this as 1..*. Also there does not appear to be guidance on this restriction.</p> <p>Section 4.5.2 states that "The discovery metadata of a dataset must list all the Data Coverage features</p>	Improve clarity and consistency by either reverting to 1..* or update the descriptions and guidance for DataCoverages to support this.	Change was incorrectly applied. Has been reverted back to 1..*.

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					contained within that dataset and their assigned scale attributions.” Perhaps this change was made as per feedback from NIWC that disjoint coverages or coverages with different scale should be separate ENC's to facilitate loading and unloading, if this is the intention then the other parts of the spec and encoding guidance would need to describe what is intended. What about if different DataCoverage features are needed due to different 'information' or file references.		
	DE	12.1.2	Row “replaced Data”	ed	In accordance with other table entries of type boolean	Add “ <i>True</i> indicates that data is replaced. <i>False</i> indicates that data is not replaced.” in column “Remarks”	Applied.
	AU	12.1.2.2	“optimum DisplayScale”	te	Is the use of optimumDisplayScale necessary? We thought it was discontinued. Is it expected to be used somehow by ECDIS???	Review the need for optimumDisplayScale . We only found references (2) to this term in DCEG 1.0.2 when it talks of spanOpen and spanClosed (not sure it should be referenced at all though).	ENC Scales and dataset load/unload Sub-Group discussions: Retain as optional for testing purposes in Edition 1.1.0. To be discussed. S-101PT9: Agreed to retain as optional for Edition 1.1.0 to enable testing.
	NIWC	12.1.2.2	“optimum DisplayScale”	te	Example should use a valid scale. Should restrict the value domain of optimumDisplayScale to match min/max display scale.		Applied.
	DE	12.1.2.2	Row “optimum DisplayScale”	ed	in accordance with other tables on other pages + on basis of Fig. 12-3	Add “0..1 multiplicity in S-100 restricted to 1 in S-101” in column “Remarks”	Has been reverted to optional (0..1). NFA at this time.

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	TC	12.1.2.2 S100_DataCoverage	optimumDisplayScale	te	If it is decided that more than one dataCoverage may exist in a dataset then it could be possible to assign a different optimumDisplayScale to each one unless this is restrained in some way.	Restrict one dataCoverage per dataset or move optimumDisplayScale up a level to be a property of S100_DatasetDiscoveryMetadata with a multiplicity of 1.	Will be addressed as part of the optimumDisplayScale discussions within the Scales and DatasetLoad/Unload Sub-Group. NFA at this time. S-101PT9: Agreed NFA for Edition 1.1.0.																												
	NIWC	12.1.2.2	minimumDisplayScale	te	Disagrees with table 1-3 where 1,000 is included.		Agree. Suggest that Table 1-3 is amended to have 1000 prohibited as a value for minimumDisplayScale (do not think it is appropriate to have a dataset that has both scales set to 1000?). To be discussed. S-101PT9: Table 1-3 amended.																												
	NIWC	2.1.2.5	verticalAndSoundingDatum	te	<p>This is not used by the 8211 encoding and is unreferenced. See S-100 5.0 10a-5.2.2.6:</p> <p>10a-5.2.2.6 Vertical Datum field structure</p> <table><tr><td>Field Tag: VDAT</td><td colspan="3">Field Name: Vertical Datum</td></tr><tr><td>Subfield name</td><td>Label</td><td>Format</td><td>Subfield content and specification</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>Datum Name</td><td>DTNM</td><td>A()</td><td>Name of the Vertical datum</td></tr><tr><td>Datum Identifier</td><td>DTID</td><td>A()</td><td>Identifier of the datum in an external sc</td></tr><tr><td>Datum Source</td><td>DTSR</td><td>b11</td><td>{1} - IHO CRS Register {2} - Feature Catalogue {3} - EPSG {254} - Other Source {255} - Not Applicable</td></tr><tr><td>Datum Source Information</td><td>SCRI</td><td>A()</td><td>Information about the CRS source if D'</td></tr></table>	Field Tag: VDAT	Field Name: Vertical Datum			Subfield name	Label	Format	Subfield content and specification					Datum Name	DTNM	A()	Name of the Vertical datum	Datum Identifier	DTID	A()	Identifier of the datum in an external sc	Datum Source	DTSR	b11	{1} - IHO CRS Register {2} - Feature Catalogue {3} - EPSG {254} - Other Source {255} - Not Applicable	Datum Source Information	SCRI	A()	Information about the CRS source if D'		To be discussed. S-101PT9: To be removed for Edition 1.2.0 (ref S-100WG decision).
Field Tag: VDAT	Field Name: Vertical Datum																																		
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	DE	12.1.2.7	Rows 2,3 and 4	ed	in accordance with other tables on other pages + on basis of Fig. 12-3	Add "0..1 multiplicity in S-100 restricted to 1 in S-101" in column "Remarks"	Applied.																												

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	7Cs	12.1.2.7	Table, row 4			What will be the version date of the ENC Product Spec 1.1.0? Could be added here.	1.1.0 is included in the Remarks column. Consider NFA.
	7Cs	12.1.2.7	Table, row 6	ed		If always '2', why not enter it here as default value?	This is still under discussion in the GI Registry development team and will likely need to be confirmed within the S-100WG (for example, does a New Edition of a PS get a new unique ID?). To be discussed. S-101PT9: No change for Edition 1.1.0.
	LR	12.1.2.7	New Attribute	te	According to the clause 4.3.1 FC can downloaded from IHO GI register site. The we need to know the version. Each FC has own version number, for example <S100FC:versionNumber>1.0.2</S100FC:versionNumber>. For Prod.Spec. S-101 ver.1.0.0 we have had FC versions 1.0.0, 1.0.1 and 1.0.2 . To avoid conflict during data loading, we have to indicate the applied FC version for each dataset in the S100_ProductSpecification type. Otherwise, we are forced to include to exchange set a new standard revision(clarification) FC. We suppose it doesn't make sense to include a new standard FC revision(clarification) to each exchange set. It is enough if a supplier of data indicates which standard version of FC must be applied with delivered dataset. We suggest to add a new attribute featureCatalogueVersion to the S100_ProductSpecification type.	Add a new row with attribute featureCatalogueVersion, see suggested new attribute at end of Table:	To be discussed. A new version of a FC should result in a NE of the PS (perhaps needs to be discussed in regards to very minor corrections?) so consider probably not required. S-101PT9: No change for Edition 1.1.0.
	7Cs	12.1.2.8	Heading	ed	S100_ComplianceCategory	S100_ComplianceCategory	Applied.

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	AU	12.1.2.8		ed	Typo	Amend from S100_ComplianceCategory to S100_ComplianceCategory	Applied.
	DE	12.1.2.8		ed		ComplianceCategory -> ComplianceCategory	Applied.
	7Cs	12.1.3	Table, row 3		For example new, replacement, etc	For example new, replacement, etc. Add '.' after etc.	Not applied. IHO convention is to not include a period at the end of an abbreviation.
	7Cs	12.1.3.3		ge		If the support file specification is S-101, this could be added here as default values. This applies also to other items throughout the document.	To be discussed. S-101PT9: No change for Edition 1.1.0.
	7Cs	12.1.4	Table, row 2	ed	See S0-100 Part1, clause 1-4.6	See S-100 Part1, clause 1-4.6	Applied.
	LR	12.1.4	The attribute 'purpose'	te	If the attribute 'purpose' is equal to 'cancellation', what then? Must the Exchange Set include the cancelled FC or PC? If so, it contradicts the first sentence which indicates that S100_CatalogueDiscoveryMetadata is used for a delivered catalogue within the Exchange Set. Why do we need to deliver a Catalogue if it is cancelled? Can an Exchange Set only contain a catalog, but no dataset? If so, it contradicts the statement of mandatory elements of exchange set, see 11.2.1 clause. A clarification of the cancellation process of Feature or Portrayal Catalogue is needed. It should be here or in the next to the last paragraph of the clause 11.3.3. Another option is to remove value "cancellation" from the allowable values for the attribute 'purpose' of the S100_CatalogueDiscoveryMetadata type.	Add clarification on how to use 'cancellation' value.	To be discussed. S-101PT9: This needs to be discussed at the S-100 level. Proposal should be made to the S-100WG.

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	LR	B-1	Last paragraph	te	According to the spatial model a composite curve can refer to other composite curves. Does it mean that the order of composite curves records must correspond to the statement of the last paragraph of the clause, i.e. child records are before a parent record?	If so, it should be indicated for composite curve records	Not sure what is intended here (one for Holger?). To be discussed. S-101PT9: No change for Edition 1.1.0. S-100WG7: Reviewed by Holger and appropriate changes made.
	NIWC	B-5.1.1	Encoding specification	te	A() format syntax is not consistently applied and is also wrong in S-100 which now shows up wrong in a product spec. I believe this is the proper syntax for variable character array in 8211. But see table on next page, B-4.1.3, where it is just A vs A()		To be discussed (Holger?). S-101PT9: S-100WG7: Reviewed by Holger and appropriate changes made throughout.
	NIWC	B-5.1.3	Attribute Code	te	Matching of array indicator from S-100 spec (throughout).		To be discussed (Holger?). S-101PT9: Applied.
	7Cs	B-5.1.10	Table, row 5	ed	CRS Identifier	CRS Identifier (remove space)	Applied.
	NIWC	B-5.1.11	Axis Type	te	Need to also allow {11} for vertical datum ({12} only applies to sounding datum)		Have added information related to a new entry for {11} to facilitate discussion. To be discussed. S-101PT9: No change required. See related comments for clause 5.3.
	LR	B-5.1.11	Axis Type	te	See comment above. to fix the B5.1.11 table where the value of Axis Type (AXTY) sub-field can be equal to {11} or {12} for vertical datum or sounding datum correspondingly.	Replace the cell "Value" with: {11} or {12} Insert to the cell "Comment": {11} - Gravity Related Height	Have added information related to a new entry for {11} to facilitate discussion. To be discussed. S-101PT9: No change required. See related comments for clause 5.3.

¹ CO = Contributing Organisation (HOs should use 2 character codes e.g. FR AU etc.)

² Type of comment: ge = general te = technical ed = editorial

³ Whilst not compulsory, comments are more likely to be accepted if accompanied by a proposed change.

NOTE Columns 1, 2, 4, 5 are compulsory.

1	2	(3)	4	5	(6)	(7)	
Component	CO ¹	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/ Table/ Note (e.g. Table 1)	Type of comment ²	Comment (justification for change) by the CO ³	Proposed change by the CO	Secretariat observations on each comment submitted
	DE	B-5.1.15	Row 4	ed	See B-6.1.11	Add "b12" in column "Format"	
	LR	B-5.1.33 (B-6.1.xx)	Mask Indicator	te ed	<p>The value {1} is defined as "Truncated by the dataset limit" in the Comment cell. We think it will be more correct to consider data coverage limits of the dataset. The current definition could be interpreted as limits of the bounding box of the dataset. The current document does not contain any specification to the rule of encoding Truncated limits of the areas in the clause 4.8.2. Masking.</p> <p>The clause 2.5.10 of DCEG mention masking of the edges where they share "the geometry of the boundary in each ENC". We think it would be better to use data coverage boundary/limit.</p> <p>The value {2}: Fix spelling of suppress</p>	<p>Replace: "Truncated by the dataset limit"</p> <p>With: "Truncated by the data coverage limit"</p> <p>Remark DCEG the clause 2.5.10 that the truncated indicator should be assigned to a curve shared by the data coverage feature.</p> <p>IF: It tells that this might be done manually {2} : Suppress → suppress</p> <p>(The same fixes must be done in B-6.1.xx)</p>	<p>Applied. However am a little concerned that this change opens the door on adjoining data coverage limits within the same dataset. To be discussed.</p> <p>S-101PT9: Requires input from Holger. S-100WG7: Applied.</p>
	DE	B-6		ed	See B-5	Information record -> Information Type record	Applied.
	DE	B-6.1.27	Row 1	ed	See B-5.1.28	Composite -> Composite Curve	Applied.

Attribute	featureCatalogueVersion	The version of feature Catalogue which should be applied with the dataset	0-1	CharacterString	1.0.2
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Suggested new attribute – see LR comment for clause 12.1.2.7.

¹ CO = Contributing Organisation (HOs should use 2 character codes e.g. FR AU etc.)

² Type of comment: ge = general te = technical ed = editorial

³ Whilst not compulsory, comments are more likely to be accepted if accompanied by a proposed change.

NOTE Columns 1, 2, 4, 5 are compulsory.

Data Coverage 1 + 2 (see Fig. 4-8) Min. display scale: 45 000; Max. display scale: 8 000	
MSVS	Display
Smaller than 90 000, e.g. 100 000	no
90 000 to 4 000, e.g. 8 000	yes
Larger than 4 000, e.g. 3500	yes, with overscale indication
Data Coverage 3 (see Fig. 4-8) Min. display scale: 45 000; Max. display scale: 22 000	
MSVS	Display
Smaller than 90 000, e.g. 100 000	no
90 000 to 11 000, e.g. 50 000	yes
Larger than 11 000, e.g. 8 000	yes, with overscale indication

Figure to accompany clause 4.6 (DE Comment)

Display order examples (1 = lowest priority) Gaps: only data <i>outside</i> of max ds – min ds range available Appropriate: data <i>within</i> max ds – min ds range available -> LIST_DC_S System Graphics Window contains all four Data Sets from Fig. 4-7; overscale indication = OSI				
	Data Set 1 Max ds 12 000 Min ds 45 000	Data Set 2 Max ds 12 000 Min ds 45 000	Data Set 3 Max ds 45 000 Min ds 180 000	Data Set 4 Max ds 180 000 Min ds 700 000
MSVS 6 000				
Gaps:	1 (+ OSI)	1 (+ OSI)	-	-
Appropriate:	-	-	-	-
MSVS 22 500				
Gaps:	-	-	1 (+ OSI)	-
Appropriate:	2	2	-	-
MSVS 90 000				
Gaps:	2	2	-	1 (+ OSI)
Appropriate:	-	-	3	-

Alternative to Fig. 4-9, clause 4.7.2 (DE Comment)

