

S-102 PT19 Minutes
28 & 29 August 2024: 1300 - 1600 (all times are UTC+2) VTC

Agenda Item	Subject	GitHub Issue	GitHub PR	Actions	Responsible for action	Target date
28 August 2024						
Topic A: Incidentals						
A.1	Welcome/ Housekeeping	N/A	N/A	N/A	N/A	N/A
A.2	Review of S-102PT18 minutes and the 27 th of June meeting /Any pending actions	N/A	N/A	N/A	N/A	N/A
Topic 1: Review of Status PS edition 3.0.0						
1.1	Review of status for PS edition 3.0.0	N/A	N/A	The PS edition 3.0.0 has been sent in to S-100WG for endorsement. Comments from member states has to be answered by PT to S-100WG latest 3 rd of September.	PT	3 rd of September
1.2	Information regarding what is happening now	N/A	N/A	1. The S-102 PT will answer the comments from Germany to S-100WG. 2. Make the changes to the PS that were decided during the meeting (see below).	1. Secretary and Vice chair 2. Germany	1. 3 rd of September 2. Before 8 th of September
Topic 2: Agenda items received from Project Team						
2.1	Proposal submitted by China MSA regarding method for displaying safety contours in the S-102 product based on a colour scheme	N/A	N/A	1. The paper will be forwarded to S-98 for consideration. 2 The paper will be in consideration of the 'Non-nav' PS.	1. Vice chair 2. PT	1. ASAP 2. N/A
Topic 3: Open GitHub issues						
3.1	Input on validation checks (Portolan Sciences)	50	N/A	1. The checks will be split into individual issues, labelled with 'Validation Checks'. 2. A meeting will be held with leaders of S-100 Validation Sub-Group regarding how to fill in the template for S-158.	1. PT 2. Vice chair	1. ASAP After S-100 Validation Sub-Group meeting #9.
3.2	Quality of formatting of the standard document (SevenCs)	57	N/A	The issue will be closed with a comment. For more	SevenCs	ASAP

				information, see agenda item 3.4.		
3.3	Draft validation checks Annex (Portolan Sciences)	59	N/A	The issue is connected to #50. It will remain open for the moment.	N/A	N/A
3.4	“Definitions” section should allow IHO S-97 document structure (Ribose)	66	N/A	The issue is connected to Metanorma-issue #187 . It will be moved to the Metanorma issue.	Chair	During October
3.5	Uncertainty – Product Support (Germany)	75	N/A	1. The following will be removed from PS ed. 3.0.0: <i>“This allows grids to span the expected range of data products from raw, full resolution grid to final compiled product. For example, a grid at the stage of final survey data processing should contain uncertainty information germane to the survey data itself and intended to be used for information compilation.”</i> The sentence can still be included it in the ‘Non-nav’ PS. The issue can be closed after action. 2. Add the clarification to the comments sheet to S-100WG regarding endorsement of PS ed. 3.0.0.	1. Germany 2. Secretary	1. Before 8 th of September 2. 3 rd of September
3.6	BathymetricUncertaintyType – name and definition (Portolan Sciences)	78	N/A	Issue is resolved and will be closed with a comment.	Portolan Sciences	ASAP
4.1	Multiple vertical Datum (Germany) and Multiple Vertical Datums as stored in a Raster Attribute Table (NOAA)	79 106	N/A N/A	#79: The issue was closed, with a comment, during meeting. #106: The issue will remain open. It is tagged for ed. 3.1.0.	Germany #106: Continued discussion for whole PT.	N/A Continued
4.2	ExchangeSet – S100_ExchangeCatalogue – identifier (Germany)	87	N/A	The attribute is now ‘optional’ in the PS ed. 3.0.0. The issue was closed, with a comment, during meeting.	Germany	N/A
4.3	ExchangeSet – S100_DatasetDiscoveryMetadata – purpose (Germany)	88	N/A	The attribute will stay as ‘mandatory’ in PS ed. 3.0.0. A new issue will be created on	PT	ASAP

				how to solve the issue at large and aim is for ed. 3.1.0. It is connected to #89.		
4.4	ExchangeSet – S100_DatasetDiscoveryMetadata – EditionNumber (Germany)	89	N/A	The attribute will remain as it is for PS ed. 3.0.0. The topic will be addressed in S-100WG for S-100 ed. 6.0.0.	PT members attending S-100WG.	S-100WG meeting for S-100 ed. 6.0.0
4.5	Transboundary coverages, and data overlap (Vice Chair)	99	N/A	Expand to include S-102 guidance in S-98 on how to handle the issue.	Vice chair	ASAP

29 August 2024						
Topic B: Incidentals						
Agenda Item	Subject	GitHub Issue	GitHub PR	Actions	Responsible for action	Target date
B.1	Welcome/ Housekeeping	N/A	N/A	N/A	N/A	N/A
Topic 4: Open GitHub issues Continued						
4.6	Potential Removal of UPS as Allowed CRS (Vice Chair)	110	N/A	The issue will be closed. A new one will be created for editing the PS so that it aligns with UPS CRS. The aim is for ed. 3.1.0. An overall review of the PS is needed for this issue.	PT	Continued
4.7	Requirement for Root Group Bounding Box To Be All Encompassing (Vice Chair)	120	N/A	1. Add the clarification to the comments sheet to S-100WG regarding endorsement of PS ed. 3.0.0. 2. Add clarification in the PS for ed. 3.0.0 (specified below). 3. Future discussions regarding removing Root Group Bounding Box from the HDF5 for ed. 3.1.0 or later. A GitHub issue will be created.	1. Secretary 2. Germany 3. PT	1. 3 rd of September 2. Before 8 th of September 3. Continued
4.8	Impact Study – Requesting input by 9 August (Vice Chair)	121	N/A	Get an update from Chair regarding the result. It needs to be included in the submission to the HSSC.	Vice chair	Before 8 th September

4.9	Software support for S-102 PS 3.0.0 (Denmark)	122	N/A	<p>Updates from OEMs on the status of their support for PS ed. 3.0.0.</p> <p>1. OEMs to update the GitHub issue with the latest information.</p> <p>2. The data producers are highly encouraged to share test data to the OEMs.</p> <p>2. Create a redline version of the PS ed. 3.0.0 for distribution to HSSC.</p>	<p>N/A</p> <p>1. OEMs</p> <p>2. PT</p> <p>3. Germany</p>	<p>N/A</p> <p>1. ASAP</p> <p>2. ASAP</p> <p>3. Before 8th of September</p>
Topic 5: Demonstrations						
5.1	Placeholder for demonstrations, test bed results	N/A	N/A	Some discussions regarding sensitive information on the sea floor.	N/A	N/A
Topic 6: Summary and actions						
6.1	Discussion on what needs to be done before S-102 PT20	N/A	N/A	<p>To be done early September for submission to the HSSC: S-102 PS ed. 3.0.0, a redline version, FC (including <i>ID</i> and <i>BathyCoverageAchieved</i>), PC and Impact study.</p> <p>Suggestions for the November meeting: Validation checks, Encoding guide</p>	See responsible for actions above. Submission to S-100WG/HSSC will be made by Vice chair.	See target dates above
6.2	Assignment of outstanding tasks	N/A	N/A	-	-	-
Topic 7: Next meeting and closing of PT19						
7.1	Next in-person meeting, S-102 PT20	N/A	N/A	<p>In conjunction with S-100WG9, Genoa, Italy.</p> <p>Registration in the new portal.</p>	PT	Afternoon of the 7 th of November and full day 8 th of November have been allocated for S-102.
7.2	Review of minutes and actions	N/A	N/A	N/A	N/A	N/A

Agenda item A1 and A2

Vice chair (Lynn Patterson) welcomed everyone to S-102 PT19, day 1. The S-102 PT18 minutes and minutes from the meeting on the 27th of June were reviewed. There were no additional comments from the PT.

Agenda item 1.1 Review of status for PS edition 3.0.0

Chair for S-100WG has informed the leadership team that the PT has until the 3rd of September to respond to any comments and/or issues that may arise from the review and endorsement period.

Agenda item 1.2 Information regarding what is happening now

During this agenda item the PT went through the received comments from member states. In this case, only Germany had sent in a comment sheet. The following is the outcome of the PT's work with the comments:

Item 1 – S-102 PT **accepted** Germany's proposed change.

Item 2 – Vice chair ensured that **“iD” is registered in the GI Registry**. It was registered on the 17th of July and has to go through the Main Control Body, which can take up to 60 days. This means that by the 16th of September it should be complete. Mr Jeff Wootton has via email correspondence explained that the Feature Catalogue Builder in the S-100 Toolkit has the capability to use Items that have been proposed but not yet finalised, which means that the concept can be used now.

Item 3 – S-102 PT **accepted** Germany's proposed change.

Item 4 – S-102 PT **decided** to move forward with only Lua. NIWC commented that there have been no comments from the PT on either XSLT or Lua and it would be better for the PT to choose one. If choosing Lua, it will be in line with S-101. There were no objections to go ahead with only Lua and there were no objections to removing XSLT from the GitHub Portrayal Catalogue repo. Germany added that there is no description available for the zip-files as it is today. NIWC responded that the zip-files would have to be delivered in two different Portrayal Catalogues, as individual ones in the Exchange Set. It is possible to choose both or just one of them.

Item 5 – S-102 PT **accepted** Germany's proposed change.

Item 6 – S-102 PT **decided** to reach out to S-164 for guidance in the future. The PT is aware that they may have to provide a sample. Jonathan Prichard will be consulted on how it needs to look.

Item 7 – S-102 PT **accepted** Germany's proposed change.

Item 8 – S-102 PT **accepted** Germany's proposed change but added that in previous discussions it was decided that name should be “bathyCoverageAchieved”. NOAA will register it in the GI Registry.

Secretary for S-102 PT will fill in the comment sheet with PT's response to S-100WG. Germany will make the changes to the PS in GitHub.

Agenda item 2.1 Proposal submitted by China MSA regarding method for displaying safety contours in the S-102 product based on a colour scheme

China MSA presented their paper.

Vice chair commented that there are no contours in S-102 and that it is a surface product. ECDIS will derive the safety contour. This proposal fits better in on the S-98 guidance. The OEMs will follow the S-98 guidance. NIWC added that at level 0, it does not exist any guidance in S-98 and it would be up to the mariner to choose. SevenCs mentioned that the safety contour shows what is safe and what is not safe and that the presentation of the safety contour should not be a part of the PS, but rather something in S-98.

Since there is no guidance for level 0, it was decided that vice chair will forward China MSA's paper to S-98 for consideration.

The PT will consider the paper in the future for the 'Non-nav' PS.

Topic 3 Open GitHub issues

Agenda item 3.1 GitHub issue #50 Input on validation checks (Portolan Sciences)

During this agenda item it was discussed that the GitHub issue and the list of validation checks needs a total rework. With the approval of PS ed. 3.0.0, many attributes have been added.

It was decided to close this issue and split the checks into individual issues, each labelled with 'Validation Checks'.

The validation checks do not have to be ready for submission to the HSSC, but the PT has to start working on them and filling in the S-158 template for S-102. The template can be found here <https://github.com/iho-ohi/S-100-Validation-Checks>. Vice chair will have a meeting with leaders of the S-100 Validation Sub-group after their meeting (number 9) on the 12th of September.

Germany also mentioned the discussion regarding 'holes' in bathymetry that have been going on occasionally. The question is still what is considered a 'hole'? the validation checks mention that it is not allowed, which Germany says is incorrect. SevenCs agreed and added that it is a matter of definition. There has been talks about so called 'scattered fields' instead of 'holes'.

Agenda item 3.2 GitHub issue #57 Quality of formatting of the standard document (SevenCs)

When this GitHub issue was created the document had formatting issues. This is an ongoing work. There was a general agreement in the PT that this issue needs to be lifted to a higher level, either to S-100WG or IHO. One comment was that IHO should be the ones making sure that the quality is up to standard.

A link was added that is specifically for IHO Metanorma issue <https://github.com/metanorma/metanorma-model-iho>. It was decided that GitHub issue #57 can be closed and it is also connected to agenda item 3.4.

Agenda item 3.3 GitHub issue #59 Draft validation checks Annex (Portolan Sciences)

During this agenda item it was a similar discussion as on item 3.1. It was repeated that the label 'Validation Checks' will be used for the issues created for validation checks. The PT should keep it simple and not create another repo.

This GitHub issue will remain open for the moment.

Agenda item 3.4 GitHub issue #66 "Definitions" section should allow IHO S-97 document structure (Ribose)

This GitHub issue will be moved to the Metanorma issue [Metanorma-issue #187](#). Chair is involved in it so the PT will still keep track of it.

Agenda item 3.5 GitHub issue #75 Uncertainty – Product Support (Germany)

During this agenda item Germany explained that according to the following in S-102 ed. 3.0.0 section 4.4.2.1 S-102 coverages, the definition of uncertainty is used for extended product support.

“This allows grids to span the expected range of data products from raw, full resolution grid to final compiled product. For example, a grid at the stage of final survey data processing should contain uncertainty information germane to the survey data itself and intended to be used for information compilation.”

With the introduction of a further standard that is not intended for navigation, this section must be revised. The delivery of raw data in a navigation product poses a risk to maritime navigation.

The PT decided to remove this part from the PS ed. 3.0.0. It can still be included in a future ‘Non-nav’ PS. After this the issue can be closed.

This clarification will also be included in the comment sheet to S-100WG regarding endorsement of PS ed. 3.0.0.

Agenda item 3.6 GitHub issue #78 BathymetricUncertaintyType – name and definition (Portolan Sciences)

This GitHub issue is resolved. The PT decided to close this issue.

Agenda item 4.1 GitHub issue #79 Multiple vertical Datum (Germany) and GitHub issue #106 Multiple Vertical Datums as stored in a Raster Attribute Table (NOAA)

Status for item #79: There is now a way forward for handling multiple vertical datums. It was resolved during the 27th of June meeting. The new feature is integrated in S-102 PS ed. 3.0.0. It was decided that this GitHub issue can be closed.

Status for item #106: The creator of the issue (NOAA) prefers to keep it open. It is tagged for version 3.1.0. It will be a continued discussion for the whole PT.

Agenda item 4.2 GitHub issue #87 ExchangeSet – S100_ExchangeCatalogue – identifier (Germany)

The attribute is now ‘optional’ in the PS ed. 3.0.0. The issue was closed, with a comment, during meeting.

Agenda item 4.3 GitHub issue #88 ExchangeSet – S100_DatasetDiscoveryMetadata – purpose (Germany)

There was some discussion during this agenda item. NIWC explained that the issue date is a date field and it does not include time. If a data producer produces several S-102 products per day, Edition Number is needed. In the case for Germany, the issue date and issue time is mandatory. SevenCs added that something needs to be mandatory if there are more than one S-102 product produced on the same day. SevenCs argued that Edition Number is the easiest way but added that this topic needs more discussion.

Germany added that Edition Number is only part of the Exchange Set but not in the HDF5 file, whereas date and time is present in both locations.

PRIMAR commented that it should be left as it is for ed. 3.0.0 and added that service provision can be problematic.

It was decided that the attribute will stay as 'mandatory' in PS ed. 3.0.0. A new issue will be created on how to solve the issue at large and aim for ed. 3.1.0. This topic is connected to GitHub issue #89 and will also be brought up at S-100WG.

Agenda item 4.4 GitHub issue #89 ExchangeSet – S100_DatasetDiscoveryMetadata – EditionNumber (Germany)

A meeting has already taken place for this issue where it was discussed to wait for ed. 6.0.0 of S-100. In addition, more testing has to be made first. This topic will be brought up again in S-100WG.

The PT decided that the attribute will remain as it is for PS ed. 3.0.0. The topic will be addressed in S-100WG for S-100 ed. 6.0.0.

Agenda item 4.5 GitHub issue #99 Transboundary coverages, and data overlap (Vice Chair, Canada)

Vice chair opened the discussion and mentioned that to some extent, this issue could have been solved with the multiple vertical datum issue. NIWC added that it comes down to the producers. They also mentioned that there will be an indication in the ECDIS and the mariner should make the choice. Vice chair continued that it is possible for the producer to clip the product as they choose and added that there should be guidance in S-98 for support in the matter.

A suggestion was to have S-98 recommend to use the shoalest of the products, but NICW added that it can differ even within a grid. It could be a mishmash of different depth values. It should be left up to the mariner on which dataset to use.

Vice chair concluded that the PT will reach out to S-98 and expand to include S-102 guidance in S-98 on how to handle the issue.

Agenda Item B.1

Vice chair (Lynn Patterson) welcomed everyone to PT19, day 2.

Topic 4 Open GitHub issues Continued

Agenda item 4.6 GitHub issue #110 Potential Removal of UPS as Allowed CRS (Chair)

Vice chair asked a general question to this issue, if it is urgent to take the UPS out of the PS? In reality, it may not be any available data in these areas in many years. SevenCs commented that UPS is the choice in the polar regions. If there is available data or not is another question.

Finland mentioned that the UPS CRS does not align well with some of the definitions in the PS as it is now. The PS needs to be revised if the PT decide to keep it in. The global coverage for S-102 needs to be looked at if it is to be removed. Germany expressed that they want to keep the UPS in the PS.

NIWC added that changes might be necessary also in S-100 and it needs to be tested. However, it is not likely the projections are going to be displayed in an ECDIS. It will be reprojected. SevenCs responded that if the CRS is defined in another system, it does not mean that the ECDIS will display that one. SevenCs also said that it is easier to design a grid that is rectangular. The bounding is always in lat/long. This is also specified in the HDF5 spec. Finland agreed with SevenCs, that if S-102 is produced in the polar regions, the spatial resolution makes no sense for WGS84 or UTM.

Vice chair support the debate and clarified that UPS is still supported in PS ed. 3.0.0, so any changes can happen in ed. 3.1.0. She also mentioned that if anyone has test data it needs to be sent it in so it can be tested. For the moment it would only be simulation.

There was an agreement in the PT that several places in the PS needs to be revised and corrected to work better for UPS. It was decided that the issue will be closed. A new one will be created for editing the PS so that it aligns with UPS CRS. The aim is for ed. 3.1.0.

Agenda item 4.7 GitHub issue #120 Requirement for Root Group Bounding Box To Be All Encompassing (Chair)

A rather long discussion took place during this agenda item. NIWC expressed that there is a need for consistency and a need for clarification what each bounding box should bound and how they are encoded. SevenCs added that there are bounding boxes in two places. One in the Root Group that is approximate. It does not contain everything and is used more for location and a rough estimation. The other place is in the Feature Instance Group and this one needs to be correct. NIWC continued that they have seen examples from more than one HO where there is an inconsistency in the bounding boxes. Germany mentioned that the data encoded in the Feature Instance Group is a float 64-bit data type and in the Root Group it is float 32-bit data, so they can never match each other exactly. Germany uses UTM and the bounding boxes does not match. What needs to match is the horizontal datum.

Finland mentioned that in ISO19123, the bounding box should be enclosing but does not need to be minimal. It needs to include all the fill values. Finland suggested that the current definition in the PS regarding Exchange Set should be in the Instance Feature definition instead. It has the same CRS as the data and that would make the perfect bounding box. SevenCs agreed that it must be the same as the CRS.

Vice chair agreed that the Root Group bounding box would need to cover the whole dataset. It was also established that the data producers will not cut their regular grids into pieces, it would make the handling complicated. For example, in Germany they use the same extent for the other S-100 products, which means that it could be that only a S-102 product may not have data over that area (i.e. land). Germany also added that compression works well in the HDF5.

A question that was brought up was why S-102 have the Root Group information in the HDF5 file? It could be removed.

Vice chair summarized that the PT needs to add a clarification in the wording to the section that the Root Group bounding box must encompass all the data. This has to be added for PS ed. 3.0.0. There will be future discussion if the Root Group bound box should be dropped in the HDF5 file. This will be left for ed. 3.1.0 and a separate GitHub issue will be opened for this topic.

Consequently, the text in the Exchange Set will be moved to Feature Instance Group with the addition that the bounding box need to encompass all the fill values. Including no fill values.

NIWC ended with mentioning that all the Feature Instance bounding boxes should be within the Root Group bounding box.

Secretary has for action to add the clarification to the comments sheet to S-100WG regarding endorsement of PS ed. 3.0.0.

Agenda item 4.8 GitHub issue #121 Impact Study – Requesting input by 9 August (Chair)

Vice chair will reach out to chair of S-102 and S-100WG for the result from the impact study, as it needs to be included in the submission to HSSC.

Agenda item 4.9 GitHub issue #122 Software support for S-102 PS 3.0.0 (Denmark)

The OEMs shared their status on software support for PS ed. 3.0.0.

- NIWC – within the next couple of weeks. They are after more test data, some S-164 data.
- Germany – they are looking for a view software. They have their own production software.
- SevenCs – they work with testbed reports at the moment with different S-100 products together. The data version is there but not yet available.
- ESRI Inc – their next release of ArcGIS Pro, version 3.4 (scheduled for November/December 2024), does not support ed. 3.0.0, but ed. 2.2. Ed. 3.0.0 will be supported in ArcGIS Pro version 3.5 which is scheduled to be released in the spring 2025. ESRI is also looking for test data.
- Teledyne CARIS – no participants at the meeting.
- NOAA – S100py python library is being updated to produce ed. 3.0.0 and they are aiming for October for a release. NOAA will be using that in their production pipeline. They plan to fund GDAL support for 3.0.0 but that should not be done until middle of next year. It is open and publicly available. NOAA will also continue to work for support visualization of VRTs with S-102 for all layers (for example, in QGIS), including different thematic views of the QoB metadata columns.

Vice chair encouraged all data producers to share test data to the OEMs. The OEMs were welcomed to update the GitHub issue with the latest information.

During this agenda item it was also established that a redline version is needed for the submission to HSSC.

Agenda item 5.1 Placeholder for demonstrations, test bed results

There were no demonstrations during this agenda item.

Germany asked a questions to data producers on how to handle stones, wrecks, obstructions? Does the other HO include all this in their S-102 products? The reason for the question is that sometimes certain wrecks have restrictions or are secret to the public.

SevenCs mentioned that safety comes first and therefore it should not be removed. In Canada, the objects are part of the digital terrain model, as part of the base layer. Finland also include all rocks. They mentioned that these objects are there for safe navigation and therefore included. Same for SMA. New Zealand added that the features are critical to navigation in their area, so they include them in the surface. NOAA explained that they do the same as Canada. Any least depth on a feature will be in parity with the S-102 depths. They also mentioned that they have some policies for historically significant/sensitive features and are happy to share out these policies.

Denmark asked what Germany's approach is if you cannot show the wreck? Germany responded that they have not decided yet. They could artificially make something in the S-102 data but it would include manual work. They also added that whatever they decide to do, the S-101 will state that it is a shallow object.

Another input from the PT was that the HO can make interpolation on that secret wreck.

It was concluded that some guidelines would be useful. An encoding guide. This topic will be discussed more during PT20 in November.

Agenda item 6.1 Discussion on what needs to be done before S-102 PT20

Vice chair went through what need to happen early September for the submission to S-100WG and HSSC:

- The PT needs to make the edits discussed during this meeting and pull a new PS ed. 3.0.0 from GitHub. Germany was asked to help with this task, which was accepted.
- A redline version needs to be created. It will also be made by Germany.
- A Feature Catalogue that includes "iD", "bathyCoverageAchieved".

- A Portrayal Catalogue.
- The impact study.

Vice chair has for action to submit the documents to S-100WG and HSSC.
Resources site <https://iho-ohi.github.io/S100Resources/>

For the November meeting the following suggestion for the agenda was brought up:

- Validation checks
- Encoding guide

If PT members have anything they would like to address it can be sent to the leadership group.

Agenda item 6.2 Assignment of outstanding tasks

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Agenda item 7.1 Next in-person meeting, S-102 PT20

The next PT meeting (PT20) will be held in conjunction with S-100WG9 in Genoa, Italy. The afternoon of the 7th of November and full day 8th of November have been allocated for S-102.

IHO Secretariat will create a S-102 meeting page shortly. The PT has to register to the meeting in the new portal, which is the same for the S-100WG meeting 9. The meeting registration is open for S-102PT20 on the following link [Meetings | IHO](#). To register, everyone has to create their own account. The guidance information can be found on the meeting page.

The ambition is to set up streaming for S-102 PT20 meeting.

Agenda item 7.2 Review of minutes and actions

Secretary went through the S-102 PT19 minutes.

Vice Chair thanked everyone and closed the meeting.