

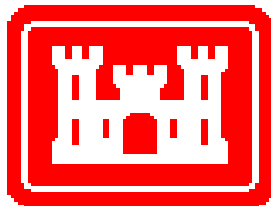


Inland ENC Harmonization Group

17th Annual Meeting

October 24 – 26, 2023

Chicago, USA



Participants of 17th IEHG meeting:

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Minutes of the meeting

[Basic presentation: 0a IEHG_2023_presentation.pdf]

1. Welcome, Introductions of Participants, organizational details

Ms. Linda M. Sorn, P.E., Chief, Engineering and Construction Division of the USACE opened the meeting, and welcomed the participants.

Bernd Birkhuber thanked her on behalf of the group for the hosting of the meeting and Denise La Due for the organization.

The participants introduced themselves.

The draft agenda was adopted without amendments [1a IEHG_XVII_Agenda.pdf]

2. Update on the legal and organizational background and the status of implementation:

Vitor Pimentel presented the status of implementation in Brazil [2a Status report Brazil 2023.pdf].

Li Liu presented the status of implementation in China [2b Status report China 2023.pdf].

Gert Morlion presented the status of implementation in Europe [2c Status report Europe 2023.pdf].

Denise LaDue presented the status of implementation in the US [2d Status report USA 2023.pdf].

Regarding the question in the Brazilian presentation how SOLAS vessels on inland waterways can use Inland ENCs, the meeting came to the conclusion that IHO has confirmed that it is allowed to implement IENC compatibility in certified maritime ECDIS, but that unluckily most maritime ECDIS are not able to display IENCs correctly. It is a main goal of the S-401 development to ensure that all SOLAS vessels that are equipped with a S-100 based ECDIS will be able to display S-401 IENCs correctly.

The European participants came to the conclusion that the new reporting tool for discrepancies that the USACE has implemented would be a good example for Europe.

The chair reminded everybody that an overview of the status of implementation with the names and km of waterways covered by IENCs and the used edition of the standard is published at <https://ienc.openecd.org>.

Action points:

All: Please provide an email to bernd.birkhuber@bmk.gv.at containing updates to the information on the status of implementation [2e IENC_Prod_overview_20230612.xlsx].

COMEX² to check whether a reporting tool for discrepancies could be implemented by EuRIS or on national level (the US tool is based on Survey 123 of ArcGIS).

3. Presentation of Inland ENC applications by private companies

Tom De Puyt presented the applications of Esri [3a ArcGIS.pdf]

Mark Hanzche informed about the applications of IIC Technologies.

Gaël Billet presented of the applications of the Periskal Group [3c Periskal.pdf]

Ryan Heinz informed about the applications of 7Cs.

Action point: The IEHG website contains a list of both National Organizations and Private Companies involved with IENCs. If not listed, please provide web address to bernd.birkhuber@bmk.gv.at for inclusion on the website.

4. Election of the Core Group of IEHG (chairs, co-chairs and technical coordinators)

- Co-Chairs: Denise LaDue and Bernd Birkhuber were confirmed as Co-Chairs.
- Vice Chairs: Li Liu informed the meeting that Fei Weijun is retiring. The participants of the meeting thanked Fei Weijun for the many years of good cooperation and wished him all the best for his retirement. On proposal of Liu Li the meeting elected Gu Qun as the new Asian Vice Chair. The meeting elected Vitor Pimentel as the new South American Vice-Chair.
- Technical Coordinators: Cameron McLeay, Gaël Billet, Li Liu, Nuno Silva and Vladimir Sekachev were confirmed as Technical Coordinators.

Action point: Bernd Birkhuber to update the list of members accordingly.
Status: done, action point closed

Election of the representatives of IEHG in the Domain Control Body and the Executive Control Body of S-100

- IEHG Representatives in the S-100 Domain & S-100 Executive Control Bodies: Denise LaDue, Gaël Billet and Gert Morlion were confirmed as representatives.
- The meeting agreed to include the S-100 representatives of IEHG in the IEHG Core Group.

Action point: Bernd Birkhuber to submit a CR for the Terms of Reference to include the S-100 representatives in the Core Group.

Amendment of the Terms of Reference

Annex B of the Terms or Reference of IEHG is containing an outdated URL of the IEHG website that has to be updated. The CR 428 had been adopted on the forum and has been confirmed by the meeting.

Action point: Bernd Birkhuber to publish the amended ToR 2023 on the website.

Update of the Introduction of the Encoding Guide for Inland ENCs

The Introduction of the Encoding Guide for Inland ENCs is containing an outdated link to the discussion forum that has to be updated [4f draft Introduction EG 2023.docx]. The CR 428 had been adopted on the forum and has been confirmed by the meeting and will be taken into account for the next edition.

List of members and participants

The participants of the meeting checked the list of members and participants of IEHG and decided to delete some persons whose contact details were outdated.

Action point: Bernd Birkhuber to publish the updated list on the website0
Done, action point closed.

5. Updates to the Encoding Guide and Product Specification

Action points from last meeting:

- Everybody: report discrepancies with S-100 to Denise
Status: ongoing
- **Action point:**
Everybody: report discrepancies with S-100 to Denise
- TWG Inland ECDIS to decide whether the encoding of the CEMT class should be kept
Status: done, should be kept, AP closed
- RIS Comex to discuss whether the unlocd should be available for ADMARE.
Status: It is not necessary. AP closed
- STATUS 4 for CBLSUB: René Visser to check and to submit change request if still needed.
Status: Not needed, AP closed
- unlocd for MORFAC: RIS Comex to submit change request, if needed.
Status: Not needed, AP closed
- René to submit a change request with an Encoding Instruction that explains in which cases wtwdis is not mandatory.
Status: done, AP closed
- develop proposal for S-401 for the symbolization of safety related restricted areas.
Status: proposal developed and adopted, symbols registered, AP closed
- catach_10 (anchorage for pushing-navigation vessels) in IENC 2.5 will have to be converted to categoryOfAnchorage 16 (anchorage for pushing-navigation vessels) in S-401
Status: Done regarding the FC. Has to be taken into account for the Conversion Guidance.

Action point:

Comex² to take the change from catach_10 (anchorage for pushing-navigation vessels) in IENC 2.5 to categoryOfAnchorage 16 (anchorage for pushing-navigation vessels) in S-401 into account for the Conversion Guidance.

- domain managers: check if there is a contradiction of CR 408 and the S-101 encoding of roofs.
Done.
Status: There is a discrepancy and we are working with IHO on an updated CR [5i Structure Over Navigable Water.docx].

Action point:

the S-100 representatives to inform IHO that IEHG agrees in principle with the proposal, but would need additional enumerations for the category of structure (e.g. the already registered “building above navigable water”) and to clarify whether “bulk” is in this case also covering break bulk.

Open discussions on the forum

Bunker: There is an overlap between our inland domain and the HYDRO domain: At the moment we are using the attribute category of bunker station (catbun) with 4 enumerations. The attribute is inland specific and therefore in the IEHG domain of S-100. The enumerations are:
1 (diesel oil), 2 (water), 3 (ballast), 4 (power)

In the HYDRO domain there is a very similar attribute: Supply Service. The enumerations are: 1 (Shore Power), 2 (Fuel Oil Bunkering), 3 (LNG Bunkering), 4 (Lubricants), 5 (Steam), 6 (Potable Water), 7 (International Shore Connection), 8 (Provisions), 9 (Chandler), 10 (Mechanics Workshop)

There is an overlap of the two attributes. The attribute is used by S-131 (contact person: Eivind Mong).

The meeting discussed whether to keep category of bunker station in S-401 or switch to Supply Service. If we stick to catbun, we will have to introduce additional enumerations for LNG, hydrogen, methanol and ammoniac (and maybe lubricants). If we switch to Supply Service, we would have to add diesel oil, ballast, hydrogen, methanol and ammoniac.

Action point:

Denise and Gaël to clarify with Jeff the best way forward and to inform Bernd, who will then finalize the CR.

- MRN: IHO strongly recommends to introduce the Maritime Resource Name (MRN) as specified by IALA in the S-100 based PS. IALA has already assigned an organization ID to IEHG and that allows us to specify inland specific MRNs.

The meeting discussed whether there is a necessity to encode a MRN according to the specifications of IALA AND a MRN according to the specifications of IEHG for the same object. A practical example could be a maritime AtoN (e.g. a maritime buoy) in an IENC. Would it be necessary to encode a IALA MRN for this buoy? And would it also be necessary to encode an inland specific MRN for this buoy?

The European participants informed that at least in Europe it would not be necessary to encode a feature with several MRN, because the RIS-NET (a database with the definition of the waterway network) will provide a link between a maritime buoy that is encoded with an IALA MRN in the Inland ENC and the RIS-ID.

The participants of other regions were not aware of a need for several MRN, but the meeting decided to introduce the MRN with multiplicity 2 to be on the safe side.

As the CR on the forum is already containing multiplicity 2 there is no additional action needed.

- Code for the attribute locmrn: the meeting discussed a question regarding the introduction of an attribute "locmrn" in edition 2.6 of the IENC Feature Catalogue: The FC is containing a numerical identifier for each feature and for each attribute. For all elements that have been copied from S-57 the codes are the same as in the S-57 FC.

locationMRN is a new attribute that did not exist in S-57. The S-100 registry is containing "Item Identifiers", but they are not the same as the identifiers in S-57. An example: the attribute SCAMIN had the code 133 in the IENC FC and in S-57, but has the Item Identifier 958 in S-100.

The attribute locationMRN has the Item Identifier 546 in S-100. S-57 does not contain a code 546.

Action point:

Gaël to contact Jeff and clarify whether we can assign a 17... identifier or IHO is going to assign a code from the S-57 range of numbers and to inform Bernd and Denise.

- Yellow lines: the Netherlands have a lot of situations where a part of a waterway is closed. Most of the times the waterway goes into a nature reserve or to a barrage or weir. In these places there is a string of small yellow marks over the full width of the waterway:



The NL now encode 2 or 3 yellow buoys and a restricted area with entry prohibited. The NL have almost 150 of those lines.

The meeting came to the conclusion that it is possible to create a new object in the standard for this with symbolization as a line with yellow dots on it, because the symbols in line styles are separate svgs anyway.

Action point:

Patrick or René to send an example how the line should look like to Gert. Gert to register the symbol and the line style. Patrick or René to draw up and submit a CR.

- The meeting discussed the use of “unknown” for numerical attributes: the General Guidance in the EG is stating: “Mandatory (M) features or attributes must be encoded. For attributes, if the value is not known, it must be coded as “unknown”.”

“unknown” is e.g. allowed for the attributes DRVAL1, DRVAL2, ORIENT. These attributes are of the type float with 2 decimals.

That raised the question whether it is really allowed and useful to encode a float attribute with text?

The meeting noticed that S-57, Use of the Object Catalogue, 5.6, also allows to encode DRVAL2 with “unknown”.

The S-101 DCEG states: In a base dataset, when an attribute code is present but the attribute value is missing, it means that the producer wishes to indicate that this attribute value is unknown.

The meeting came to the conclusion that there have never been problems and no change is needed.

Change Requests that have been adopted since edition 2.5 [5h CR collected for IEHG 2023.docx].

The IEHG meeting confirmed the adoption of CRs 412, 413, 414, 415, 418, 420, 421, 424, 426, 427, 429, 431, 432, 434, 435, 436.

The meeting discussed CR 419 and came to the conclusion that the CR has to be modified. The attribute wtwdis has to stay mandatory for the feature disarm, because a distance mark without a value is useless. The condition for the encoding of wtwdis for other features has to be if the wtwdis exists. This would solve the problem for estuaries. For bridges an Encoding Instruction should be added to encode the refgag only if it does allow a reliable calculation of the bridge clearance.

Action point: René to update and resubmit the CR 419 accordingly.

The meeting discussed CR 422 and noticed that the term “VHF activated” has been replaced by “radio activated” in the registry. The symbol and the line in the Lookup Tables should be added to the European standard and to the S-401 PC.

Action point: Denise to update the CR 422 accordingly.

Gert to amend the Symbol Library and the Lookup Tables.

The meeting discusses CR 423 and noticed that the proposed Encoding Instruction for the EU has to be aligned with the decision regarding refgag (“can be used to do a reliable calculation of the vertical clearance”).

Action points: Bernd to update the CR 423 accordingly.

The domain managers to register the changes in the registry.

The meeting discussed CR 425 and noticed that the value lists of the attribute CATREA of the features RESARE and resare have also to be amended with the new enumerations in the FC. The following lines have to be copied from S-52 to the Lookup Tables:

"RESARE", "CATREA27", "SY(ESSARE01);LC(ESSARE01)", "5", "S", "STANDARD", "26010"

"RESARE", "CATREA28", "SY(PSSARE01);LC(ESSARE01)", "5", "S", "STANDARD", "26010"

Action point: Gert to update the CR 425 accordingly.

The meeting discussed CR 426 and noticed that the adopted changes have to be taken into account for the Conversion Guidance.

Action point: COMEX² to take the changes regarding CONDTN 3, STATUS 18 and InDispute in CR 426 into account for the Conversion Guidance.

Action point: the S-100 representatives to register the changes contained in CR 430, 435 (enumerations 124-127, MARSYS 13, svgs will be provided by Vitor) and 437 (when submitted).

Action point: Gert to add the new lines for the Brazilian notice marks (CR 435) to the Lookup Tables. Bernd to publish the Presentation Library with the Brazilian notice marks on the website.

The meeting discussed CR 433 and came to the conclusion that “ammoniak” has to be replaced with “ammonia”. The concepts for the new enumerations should be defined without “available”. It could be checked if the use of a complex attribute to indicate whether a fuel is provided by a hose or in a container would be useful.

Action point: Bernd to update the CR 433 accordingly.

The meeting discussed CR 437 and agreed that a new inland specific check with a Warning should be added for the three deleted elements.

Action point: Michael to update CR 437 accordingly.

Bernd presented the draft of CR regarding CEVNI and the meeting agreed that it should be submitted after discussion with the CESNI secretariat.

Action point: Bernd and Gert to discuss the CR regarding CEVNI with the CESNI secretariat and to submit it after finalization and the adding of the concepts.

The meeting discussed and adopted a guideline for the development of new symbols for S-401 [5k Proposal SVG Profile scheme for symbols.pdf] and the example of an annex to a change request that contains new symbols [5j Proposal change request symbol.docx]. It noticed that they will have to be updated depending on IHO decisions.

Action point: Bernd Birkhuber to add references to the new documents in the guideline for the drafting of CRs and to publish the documents on the website.

Status: done, action point closed

6. Update intervals and processes, decision on next version or edition

Action points from last meeting:

- Bernd Birkhuber to develop a proposal for an amendment of the CR form (done, action point closed)
- Bernd Birkhuber to propose an amendment of the guideline for the drafting of change requests with regard to the concept register in the S-100 registry (done, action point closed)

Edition 2.5 has been published by IEHG in spring 2020.

The meeting decided to publish an edition 2.6 and agreed on the following deadlines:

- | | |
|--|-------------------|
| • Deadline for submission of CRs that affect S-100: | 22 March 2024 |
| • Deadline for submission of CRs that do not affect S-100: | 17 May 2024 |
| • Deadline for adoption of CRs for 2.6: | 28 June 2024 |
| • Distribution of first draft of EG, FC, PS: | 12 July 2024 |
| • Deadline for comments on the draft: | 23 August 2024 |
| • Distribution of the final drafts (forum): | 13 September 2024 |
| • Deadline for veto: | 31 October 2024 |
| • Publication of edition 2.6: | November 2024 |

It emphasized that CRs that are affecting S-100 should nevertheless be submitted as early as possible to ensure that they can be integrated in edition 2.6 even if they have to be updated for registration.

Action points: Bernd to publish the deadlines on the discussion forum and to inform the European temporary working group for Inland ECDIS.

The S-100 representatives to register requested changes as soon as possible.

Bernd to prepare the draft of the PS 2.6.

Denise to prepare the draft EG and FC 2.6.

Gaël to integrate all adopted changes in the S-401 FC.

7. Quality standards for Inland ENCs

Updates of the recommended validation checks for Inland ENCs

Action points from last meeting:

- Hendrik Göhmann to check with the developers of the Analyzer if it is feasible to replace check 2000 with references to the FC for IENCs (done, action point closed)
- the European temporary working group on Inland ECDIS to develop the proposal for edition 2.5 of the RVC for IENCs in 2022 (done, action point closed)
- Hendrik Göhmann to check the time frame for a possible test implementation. (done, action point closed)
- Esri and caris to check if they could do test implementations, too.
Stratus: open, but can be closed.

- [Bernd Birkhuber to upload the amended proposal on the discussion forum \(done, action point closed\)](#)

Tests have been performed on the basis of the draft version of the RVC for Inland ENC 2.5. The results have been the basis for a correction. Edition 2.5.1 has been published on 12.05.2023.

The meeting agreed to delete the word “Recommended” from the title of the document.

The meeting discussed the timeframe for the development of an edition 2.6 of

- the Recommended Validation Checks for Inland ENC 2.6
- test charts

The meeting discussed how to get access to a production tool for test charts and took a presentation of Tom for Esri into account. It came to the conclusion that e.g. notice marks and buoys should be positioned in a raster for a better overview, but on the respective LNDARE / DEPARE.

Action points: Bernd to prepare a draft of the VC 2.6 until 12.07.2024.

Gert to check if COMEX² could contribute to the development of test charts.

minimum content of Inland ENC 2.6

Action points from last meeting:

- China to investigate whether a different definition of minimum content is necessary for its waterways.
Status: yes, will be necessary.

The meeting decided that there is no need to develop an update of the minimum content 2.4 and 2.5.

Action point: China to submit a CR with the necessary amendments of the minimum content for the Chinese inland waterways.

8. Status of development of S-99, S-100, S-101 and other S-100 based products

The meeting took account of the speech to IEHG that Mathias Jonas, the Secretary General of IHO had provided [Inland ENC speech.mp4]. It thanked the Secretary General, the IHB and IHO for the possibility to participate in the S-100 related working groups.

Action point: Bernd to forward the thanks to Mathias Jonas, to forward the apologies that IEHG is not able to participate in all the S-100 related working groups actively due to a lack of personal resources, and to point out, that a DCEG builder that could not only be used once but would allow to update the tables in already established DCEGs whenever a FC is amended would ensure the full integrity of FC and DCEG, while there would always be a growing risk of inconsistencies between FC and DCEG if the two elements are updated manually. If such a dynamic DCEG builder would also be valued by other S-products, it would be very much appreciated if it would be provided as part of the announced S-100 tool kit.

It should also be emphasized how important the integration of S-401 in S-98 will be once S-401 has been finalized.

The meeting took note that the S-100 based ECDIS (based on IEC standard) will be in use from 01-01-2026.

[8a S-99 Ed 2.0.0_Final.pdf]

[8b S-100_5.0.0_Final_Clean_Web.pdf]

[8c S-101 ENC_Product_Specification_Edition 1.1.0_Final_Clean.pdf]

[8d S-101 Annex A_DCEG Edition 1.2.0.20231016_Working.doc]

Action points from last meeting:

- all to contribute to a gap analyses as soon as S-98 is available.
Status: done, AP closed
- keep track of S-101 developments and the consequences for IENCs (Cameron, Chris, Tom, René, Friedhelm, Gert, Gaël and Patrick).
Status: ongoing, but without Chris.

Action point: keep track of S-101 developments and the consequences for IENCs (Cameron, Tom, René, Friedhelm, Gert, Gaël and Patrick).

The meeting took note of the concept register and the necessity to register concepts for all new features, attributes and enumerations.

The meeting took note of the development of S-501, where a caris toolset had been used. It is seen as a parallel development to S-401 and there seem to be similar problems. The meeting came to the conclusion that it might be useful to get into contact.

Action point: Denise to reach out to Tom Bovey regarding S-501 developments to determine whether there will be similar challenges faced by S-501 regarding Interoperability with S-101.

9. Interoperability and S-98

Action point from last meeting:

- Gert Morlion to finalize a draft paper for the S-100 working group and HSSC with the explanation why interoperability is important, examples of areas where maritime vessels are navigating on waterways with IENCs, and the request to include S-401 in future versions of S-98. The draft should be sent to IHO after agreement in the Core Group of IEHG.
Status: done, AP closed

The meeting stated that S-401 itself should guarantee that maritime vessels with S-100 based ECDIS could use S-401 IENCs. But as long as S-401 is not integrated in S-98 it would only be possible to display either S-101 ENC or S-401 IENCs when a vessel is crossing from the maritime area into the inland waterways.

10. Alignment of the Inland ENC Product Specification with S-101 (S-401)

1. Product specification

Action points from last meeting:

- All regions to test edition 1.0.0 of S-401 and to submit feedback
Status: so far no feedback, keep AP

Action point: All regions to test edition 1.1.0 of S-401 and to submit feedback

- The S-401 expert group to try to include overlay cells in the next edition of S-401 and to report to IEHG (would have to be handled by S-98 if separate PS for overlay cells
To be discussed whether it is possible and necessary to include them in S-401)
Status: no decision, keep AP

Action point: The S-401 expert group to try to include overlay cells in the next edition of S-401 and to report to IEHG (would have to be handled by S-98 if separate PS for overlay cells
To be discussed whether it is possible and necessary to include them in S-401)

Edition 1.0.0 of S-101 has been published (see https://registry.iho.int/document/list.do?product_ID=S-101), but portrayal, validation, encryption, alerts and indications will only be finalized in an edition 2.0.0 that is scheduled for 2024.

Likewise the edition 1.0.0 of S-401 (see https://registry.iho.int/document/list.do?product_ID=S-401) is also without these parts.

Edition 2.0.0 of S-101 should be adopted end of 2024 and will be the first operational edition.

The S-401 PS has therefore to be adapted to the latest versions of S-100 and S-101. A first review has shown:

- Rephrasing but no big changes in content
- References to DCEG

The meeting decided to use always the same numbering as S-101 for all documents. The meeting had a look at the draft PS and answered some questions [10 1c S-401 ENC Product Specification 20231025.docx]. Some questions need still to be answered and especially the tables need to be checked.

The meeting decided to work with edition 1.1.0 and to update to edition 2.0.0 as soon as it is available. An intermediate update to 1.2.0 might be necessary when the changes have been checked.

Action points: Gert to contact Jeff and to compare the draft with edition 1.2.0 of the S-101 PS.

2. Feature Catalogue

Action points from last meeting:

- RIS Comex to check for inland specific features individually if CONDTN_3 or STATUS_18 should be replaced by the new attribute inDispute.
Gert submitted a change request on the forum

Action point: Gaël to integrate it in the S-401 FC.

- RIS Comex to include both restricted areas in the S-401 FC.
Gaël to integrate the change request 425 in the S-401 FC if it is adopted.
Status: in S-101 reunified. Action point closed
- RIS Comex to
 - add uNLocationCode to all three features as optional attribute
Status: done, action point closed,
 - assign waterwayDistance only to bridge
Status: done, action point closed
 - develop a proposal how to encode bridges with different types of opening spans and which attributes have to be assigned to which features (taking into account the solution of S-101).
Status: solution of S-101 still under development

Action point: COMEX² to finalize the CR for bridges as soon as the S-101 solution is stable. Multiplicity 1,* for category of opening to allow the encoding of bridges that have different opening spans. Attribute category of opening span also for the opening span and Encoding instruction: category only encoded for opening span, if more than one span and more than one categories of those spans.

- RIS Comex to delete enumerations 7 and 14 of techniqueOfVerticalMeasurement if the definitions are not too different from 15 and 17.
Status:
7: Found by Laser: measuring depth
14: Computer generated: The sounding was determined from a bottom model constructed using a computer
Removed from the FC. The elements are still in the Registry.
done, action point closed
- RIS Comex to create the complex attribute powerCharacteristics in the S-401 FC.
Status: done, action point closed
- RIS Comex to define LockBasin, Dockarea and LandArea as skin of the earth in S-401 and to assign an attribute for the maximum permitted draught to LockBasin and DockArea.
Status: Proposal written for IHO to reverse the decision to define LockBasin and DockArea as group I features, decision has been reversed, action point closed
- Gaël to investigate if the DCEG Builder is able to combine information from the FC and the Registry automatically.
Status: no, at the moment it is not able to do that.

Action point: Bernd to inform Mathias Jonas about the importance of a dynamic DCEG builder to keep FC and DCEG in line and to ask whether other products might have the same wish.
Status: done, action point closed

- the S-401 expert group to produce an edition 1.0.0 of the S-401 FC when
 - the feature bindings have been added,
 - the two CRs have been taken into account,
 - the encoding of the different types of span open has been solved [10 2d Proposal encoding bridges.docx] and
 - Hana (and others) have finalized the checks whether the draft is in line with edition 2.5corr2. This edition should then be published on ienc.openeedis.org and registered in the S-100 Registry. As edition 1.1.0 of the S-101 FC might already be available when the points mentioned above are solved, the first edition of the S-401 FC could also be based on edition 1.1.0 of the S-101 FC.

Status:
S-101 Ed 1.1.0 has been approved and a new FC S-101 Ed 1.1.0 is available, based on S-100 Ed 5.0.0.
The new Feature Catalogue Builder v3.0.3.0 is compliant with S-100 Ed 5.0.0, has been released and has to be used. The management of the feature associations is currently not supported by the current version of the FCB. A new version should be published in November.
- Creation of the S-401 FC Ed 1.1.0 based on that Edition of the S-101 FC:
 - Remove of the S-101 features that will not be used in S-401 -> done
 - Create the specific Inland features -> done
 - Adapt the S-101 features with Inland characteristics: -> done
 - Attributes/Enumerations
 - Multiplicity requirement (eg scaleMinimum from (0,1) to (1,1))
 - Adapt the feature associations

- Remove unrelevant feature associations -> done
- Create the feature associations for the Inland features -> to be done
- The draft version of the S-401 FC is available on the IEHG Forum
- The first tests with the S-401 FC have made by CARIS, ESRI and 7Cs

For testing S-401 charts, a published edition of the Feature Catalogue is necessary.
Status FC: [10 2b S-401_FC_1.1.0_230905.xml]

Action point: Gert and Gaël to identify the necessary associations.

Gaël to encode them in the draft FC.

Gaël to finalize edition 1.1.0 of the S-401 FC taking also adopted CRs for edition 2.6 into account. This version should then be tested in the viewer of the S-100 test bed and published and registered, together with edition 1.1.0 of the PS.

The meeting confirmed that the attribute referenceGauge has to be assigned to SpanFixed and SpanOpening (and not to Bridge) where all the attributes related to the vertical clearance are encoded in the S-401 FC.

The meeting decided to keep the inland specific attribute waterway distance, because the new HYDRO complex attribute measuredDistanceValue does not fit for inland waterway distances. The meeting decided however to switch to distanceUnitOfMeasurement and to add the Inland enumerations there.

Action points:

Gaël to submit a CR regarding distanceUnitOfMeasurement.

COMEX² to take that into account for the conversion guidance

The simple attribute pictorialRepresentation (PICREP) and the complex attributes information (INFORM, NINFOM) are back in the S-101 FC Ed 1.1.0. They are present in many S-101 features but not in all of them.

In IENC Ed 2.5, these attributes are present by default in most of the features in the FC (but sometimes also not mentioned in the EG).

The meeting decided to add them to all the S-401 features and the HYDRO features to be in line with Ed 2.5.

Action point: Gaël to add PICREP, INFORM, NINFOM to all features in the S-401 FC that have these attributes in Edition 2.5.

If some enumerations are not listed in S-101 but are present in the Ed 2.5 FC (but not in the Encoding Guide), all the enumerations listed in the FC should be added by default. CRs would be needed to delete them.

Action point: Gaël to add all enumerations of 2.5 (and 2.6) to the S-401 FC.

The enumerations 7 and 14 for techniqueOfVerticalMeasurement are not present anymore in S-401 FC as agreed during the previous IEHG meeting in Hasselt.

- Enumeration 7: foundByLaser
- Enumeration 14: computerGenerated

These two enumerations are part of the INLAND ENC Domain. The meeting decided that a proposal to remove them from the IHO Registry could be submitted later, when it is clear that they are really no longer used.

Action points:

Denise to submit CR to delete the enumerations 7 and 14 and to add the enumeration 15 in edition 2.6.

S-100 representatives to solve the inconsistencies in the registry [10 2e errors in the S 100 registry 2023 10 25.docx]

3. Portrayal Catalogue

Action points from last meeting:

RIS Comex to continue as proposed in the presentation when a stable PCB is available, contribution of all members via the discussion forum [ongoing].

Status:

The LUA script development is only possible when the functionality can be checked. Comex has talked to software manufacturers for testing possibilities.

NIWC offered help in development, a first set of scripts is ready based on *combined look up tables" [10 3a portrayal_catalog_S-401_2_5_1.1.0.zip].

Open questions:

- How did NIWC come to these results?
- What are the next steps?
- Are the manufacturers going to support a test environment?

Action points:

COMEX² with the support of Mikan to

- continue as proposed in the presentation when a stable PCB is available, contribution of all members via the discussion forum
- develop test data based on the input from Laszlo and René
- amend the Conditional Symbologies on the basis of available CS (OpenCPN) or CS of other manufacturers
- consider real world pictures as a solution for the display of multiple notice marks at the same spot
- create a tree structure for the PC
- create the XML for the PC.

Bernd to describe the rules for the selection of the correct notice mark symbol and to send them to Mikan.

- All members that submit proposals with new symbols to provide the symbols in SVG format themselves or to provide them in a different format to Claudia Heckert or Rade Gicic for conversion to SVG.
Status: Rade Gicic no longer available

Action point: All members that submit proposals with new symbols to provide the symbols in SVG format themselves or to provide them in a different format to Claudia Heckert for conversion to SVG. They have to take the new guideline and the form for symbols into account.

No decision taken on the SVG profile by IHO. Proposal pending with minimal impact on the existing Inland symbols.

Action point: Gert to check the consequences of the decision of IHO when it is available.

IEHG has agreed to use the European Presentation Library as a starting point for the development of the S-401 Portrayal Catalogue. But the European Presentation Library is not containing display rules for the notice marks in Brazil, for the Paraguay-Parana Waterway and for the Russian inland waterways.

We need to add rules that ensure that the correct symbol is selected for the display on the basis of the encoded enumeration of the attribute Navigational System of Marks (MARSYS).

Action points: Vitor to provide the svg symbols and raster symbols of the Brazilian notice marks and the additional lines for the Lookup Tables.
Bernd to publish the amended Presentation Library on the website.

4. DCEG / EG

Status: [10 4a S-401 DCEG Ed1.1.0_draft.doc]

IEHG has decided to follow the example of the DCEG, if it is possible to update the DCEG without the need to manually add all the text that is not created from the FC and the PC manually after each update.

Action points from last meeting:

- domain managers to ask IHO if it would be possible to have several pages for one feature in the DCEG.
answer: no, at least not at the moment. Action point closed
- domain managers to clarify with IHO whether slightly different definitions of the same feature would be possible in different domains (as long as they are based on the same concept).
answer: no, action point closed
- RIS Comex and all members of IEHG to continue the development of a DCEG for S-401 taking into account the decisions of IEHG mentioned above.
Status: ongoing

Action point: Comex² and all members of IEHG to continue the development of a DCEG for S-401 taking into account the decisions of IEHG.

S-101 Ed 1.1.0 has been approved and a new DCEG S-101 Ed 1.1.0 is available. The latest working version of S-101 DCEG is available at: <https://we.tl/t-NOFF6AxAOx>

Edition 1.2.0 is scheduled to be published at the end of this year. It takes into account the decisions taken during the S-101PT10 and PT11 meetings. The working version is available on the IHO Registry (and has also been uploaded on the IEHG forum). [10 4c 2310 - IEHG - S-101 DCEG Ed1.2.0.pdf]

Edition 2.0.0 (first operational version of S-101) has to be ready for publication in the middle of 2024.

The meeting decided to use the new feature helipad and to take it into account for the conversion guidance (currently RUNWAY). Regarding Dolphin, Bollard and Mooring Area it decided to include the final versions of these S-101 features and to decide then whether additional categories are necessary.

Action points:

Gaël to include Helipad, Dolphin, Bollard and Mooring Area in the S-401 FC when they are finalized for S-101.

All to check whether additional categories are necessary.

COMEX² to take them into account for the conversion guidance.

The meeting was informed that IHO is not intending to use the DCEG Builder for updates. For S-101 the DCEG builder was only used to create the first version of the DCEG. Now new developments take mostly place in the draft DCEG and are then implemented manually in the FC.

The meeting came to the conclusion that this is a possible way of working, but that there is a big risk of inconsistencies between FC and DCEG. It would be highly appreciated if IHO would provide a tool that allows the dynamic maintenance of FC and DCEG.

The current EG is not listing all attributes and enumerations that are part of the FC, but only those that are recommended for use. The meeting came to the conclusions:

- to create a separate table with the recommended attributes and enumerations if a dynamic DCEG is available and
- to delete the attributes and enumerations that are not recommended for use in the tables of the DCEG if the DCEG has to be updated manually.

The meeting discussed the proposal for the encoding instructions for 'bridges' and 'berths' as an example how to transfer several pages of the current EG into the DCEG structure [10 4b S-401_Data Classification and Encoding Guide_0.0.1 with IEHG berth and bridge.docx]. The meeting decided to use the numbers of catbrg also as a reference for the pictures and to delete the column Paper Chart Symbol.

Action points:

Bernd to compare the general section of the DCEG 2.0.0 when it is available with the draft of the S-401 DCEG and to make the necessary changes;

Denise, Gaël and Bernd to start with the development of the inland specific feature related pages of the DCEG on the basis of the S-101 DCEG 1.2.0 and the amendment of the maritime feature related pages when edition 2.0.0 of the S-101 DCEG is available. [10 4f S-101 Annex A_DCEG Edition 1.2.0.20231016_Working.doc]

5. Development of S-401 test cells

S-401 can only be integrated in the interoperability standard S-98, if IEHG provides test cells that can be used to verify the interoperability. Without that S-401 could work in inland areas, but it would not be possible to display S-101 ENC's and S-401 IENC's together in the coastal regions.

Action points:

Denise to ask Caris and Esri whether they can develop test cells. The cells provided by Laszlo and René can be taken into account, but cells with features in a geometric pattern (on the correct background of DEPARE or LNDARE) would make checks easier.

[1R7EMS03.000]

[1R57GBG5.000]

6. Alert catalogue

The meeting discussed whether an Alarm Catalogue as part of the Portrayal Catalogue should be developed [10 6a Proposal alert and warning.docx].

Europe: Inland ECDIS standard defines all kind of alarms, there's no need to focus on an 'alarm catalogue'.
US and Brazil: no immediate need

11. S-57 to S-100 converter development

IEHG has been informed about the development of a converter for S-57 datasets to S-101 for test purposes.

Action point from last meeting:

- develop mapping tables for the new combined attribute powerCharacteristics, maybe the restricted areas (which restriction enumerations for which feature) and the inland specific elements.

Status:

New IHO document with conversion rules

change of restricted areas no longer necessary

Adapted for S-401 as far as possible

S-401 WG needs to check and amend (features, attributes are checked)

The DCEG is a precondition for the finalization of the conversion guidance

Talking to software companies to support conversion

- 'S-101' changed into 'S-401'
- 'S-57 ENC' changed into 'S-57 IENC'
- 'ECDIS' changed into 'Inland ECDIS'
- 'S-58' changed into 'Recommended Validation Checks'
- 'Mariners' changed into 'Skipper'
- Table A.2 based on S-58 Check 2000 -□ changed into FC Ed2.5
- Table A.2 checked and adapted
- DCEG: all references to DCEG clauses are marked.
- m_nsys and marsys will be reworked for S-101

The meeting decided to decide later whether a conversion guidance in both directions is needed for dual fuel.

Questions:

'S-401 ENC' or 'S-401 IENC': S-401 is pointing to inland domain, so the prefix 'inland' is not necessary.

'Skipper' or 'Boatmaster': 'boatmaster' is used in European ES-RIS!

Action points:

Gert and Gaël to start working on the inland specific features.

Tom and Gert to start working on the copied and amended features (check all existing maritime rules)

Ask Jeff for first draft of S-101 to S-57 conversion guidance.

Depending on the new proposal of IHO for encoding bridges, it has to be taken into account as well for the conversion guidance [11 S-57 to S-401 Conversion_Guidance_Draft Ed 0.0.1.20230624.docx].

Dual fuel:

Inland S-57 / S-401

Maritime S-57 / S-101

Inland S-57 / S-401 / Maritime S-57 / S-101

What do we want to support?

Should

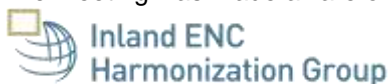
- Chart producers provide S-57 and S-401 cells in the transitional period or
- Application builders provide dual/four fuel applications that are able to load S-57 and S-401 cells?

The meeting came to the conclusion that a dual fuel period will be necessary, but to decide the details later.

Action point:

The S-100 representatives to ask IHO whether a quattro fuel (Inland S-57 / S-401 / Maritime S-57 / S-101) would be taken into account.

The meeting was made aware of the following resources on Github:



<https://github.com/iho-ohi/S100Resources>
<https://github.com/IHO-S100WG/S100-Schemas>
<https://github.com/IHO-S100WG/S100UML>

The meeting discussed possibilities of collaboration platforms.

Action point:

Denise to check the possibilities of APAN.

Gert to check the possibilities of Github, which is especially targeting developers.

12. The Aids to Navigation (AtoN) Information Product Specification (S-201) and The Navigation Services Product Specification (S-125)

IALA is working on Product Specifications for Aids to Navigation (AtoN) Information (S-201) and for Navigation Services (S-125). A joint IALA – S-100 meeting is scheduled for summer 2024 in Virginia. Gerald, Denise and Dave are considering to participate.

The Bathymetric Contour Overlay for Inland ENC Product Spec. (S-402)

S-402 has been reserved by IHO for the Bathymetric Contour Overlay for Inland ENC Product Specification as requested by IEHG. The existing Product Specification for bathymetric Inland ENCs and S-401 should be the basis for the development of S-402. IEHG has decided to start with the development of S-402 when the corresponding parts of S-401 have been adopted.

13. Annual Report to HSSC about IEHG

IEHG is recognized as a NGO with observer status by IHO and is therefore presenting a report on the status of Inland ENC standardization and implementation each year to HSSC. The next meeting will be 27.5 to 2.6. in Japan.

Action point: Denise LaDue and Bernd Birkhuber to update the report to HSSC in time for the HSSC meeting in Japan.

Status: Done, see draft [13 IEHG Report to HSSC 16.pptx], action point closed

14. Updates of the Information documents on Inland ENCs (Inland ENC.doc and Inland ENC.ppt on the website)

Action point from last meeting:

- All members of IEHG are invited to submit proposals for amendments of the information document on Inland ENCs (Inland ENC.ppt on the IEHG website).

Action points: All members of IEHG are invited to submit proposals for amendments of the information document on Inland ENCs (Inland ENC.ppt on the IEHG website).

The Core Group to update regulatory status, coverage and contact persons.

Bernd to add a link to the S-100 registry and the S-401 PS.

Vitor to update the Spanish version and to produce a Portuguese version.

Gaël to produce a French version.

Claudia to produce a German version.

All to take not only the slides themselves but also the notes in the ppt into account.

15. Future operation of:

the ienc.openecdis.org website

discussion forum for Inland ENCs

Action point from last meeting:

- Denise LaDue to investigate whether it would be possible to display the status of the CRs in the overview (pending, adopted, rejected).

Action point: Denise LaDue to investigate whether it would be possible to display the status of the CRs in the overview (pending, adopted, rejected).

IENC Register (as part of S-100 Registry)

16. Any other business

Action points from last meeting:

- Bernd Birkhuber to create a document with the action points and columns indication responsibilities and the status and post it on the forum to keep track of the action points defined by the IEHG meeting.
Status: done, AP closed
- the S-401 expert group to ask for coordination meetings with IHO working group representatives and to inform the Core Group.
Status: done, AP closed

17. Next meeting – Date and Location

According to rotation principle the next meeting of IEHG could take place in Russia or Asia in autumn 2024. The meeting discussed the date and location and Vitor offered to check whether Brazil could host the next meeting.

Action point: Vitor to investigate the possibilities for the next meeting.
The Core Group to inform all members of IEHG.

Annex
Action points per person/organisation

	Status
All	
Please provide an email to bernd.birkhuber@bmk.gv.at containing updates to the information on the status of implementation [2e IENC_Prod_overview_20230612.xlsx].	
The IEHG website contains a list of both National Organizations and Private Companies involved with IENCs. If not listed, please provide web address to bernd.birkhuber@bmk.gv.at for inclusion on the website.	
report discrepancies with S-100 to Denise	
test edition 1.1.0 of S-401 and submit feedback	
All members that submit proposals with new symbols to provide the symbols in SVG format themselves or to provide them in a different format to Claudia Heckert for conversion to SVG. They have to take the new guideline and the form for symbols into account.	
continue the development of a DCEG for S-401 taking into account the decisions of IEHG (together with COMEX ²).	
check whether additional categories are necessary for Dolphin, Bollard and Mooring Area (when finalized by S-101)	
submit proposals for amendments of the information document on Inland ENC's (Inland ENC.ppt on the IEHG website). take not only the slides themselves but also the notes in the ppt into account	
Bernd	
update the list of members	done
submit a CR for the Terms of Reference to include the S-100 representatives in the Core Group.	done
publish the amended ToR 2023 on the website	done
publish the updated list of members on the website	done
update the CR 423 ("can be used to do a reliable calculation of the vertical clearance")	done
Publish the Presentation Library with the Brazilian notice marks on the website. (when amended by Gert)	
update the CR 433 ("ammonia" and complex attribute)	
discuss the CR regarding CEVNI with the CESNI secretariat and submit it after finalization and the adding of the concepts (together with Gert)	
add references to the new documents in the guideline for the drafting of CRs and to publish the documents on the website.	done
publish the deadlines for 2.6 on the discussion forum and inform the European temporary working group for Inland ECDIS.	
prepare the draft of the PS 2.6 until 12.07.2024.	
prepare a draft of the VC 2.6 until 12.07.2024.	
forward the thanks to Mathias Jonas, to forward the apologies that IEHG is not able to participate in all the S-100 related working groups actively due to a lack of personal resources,	done

<p>and to point out, that a DCEG builder that could not only be used once but would allow to update the tables in already established DCEGs whenever a FC is amended would ensure the full integrity of FC and DCEG, while there would always be a growing risk of inconsistencies between FC and DCEG if the two elements are updated manually. If such a dynamic DCEG builder would also be valued by other S-products, it would be very much appreciated if it would be provided as part of the announced S-100 tool kit.</p> <p>It should also be emphasized how important the integration of S-401 in S-98 will be once S-401 has been finalized.</p> <p>inform Mathias Jonas about the importance of a dynamic DCEG builder to keep FC and DCEG in line and to ask whether other products might have the same wish.</p>	
describe the rules for the selection of the correct notice mark symbol and send them to Mikan	done
publish the amended Presentation Library on the website (with symbols and Lookup Tables for South America)	
compare the general section of the DCEG 2.0.0 when it is available with the draft of the S-401 DCEG and make the necessary changes;	
start with the development of the inland specific feature related pages of the DCEG on the basis of the S-101 DCEG 1.2.0 and the amendment of the maritime feature related pages when edition 2.0.0 of the S-101 DCEG is available. [10 4f S-101 Annex A_DCEG Edition 1.2.0.20231016_Working.doc] (together with Denise and Gaël)	
update the report to HSSC in time for the HSSC meeting in Japan. (together with Denise)	done
update regulatory status, coverage and contact persons in the IENC ppt.	done
add a link to the S-100 registry and the S-401 PS in the IENC ppt	
Inform all members of IEHG about the next meeting (when location and date clarified)	
Cameron	
keep track of S-101 developments and the consequences for IENCs (together with Tom, René, Friedhelm, Gert, Gaël and Patrick.)	
Ckaudia	
produce a German version of the IENC ppt	
COMEX²	
check whether a reporting tool for discrepancies could be implemented by EuRIS or on national level (the US tool is based on Survey 123 of ArcGIS).	
take the change from catach_10 (anchorage for pushing-navigation vessels) in IENC 2.5 to categoryOfAnchorage 16 (anchorage for pushing-navigation vessels) in S-401 into account for the Conversion Guidance.	
take the changes regarding CONDTN 3, STATUS 18 and InDispute in CR 426 into account for the Conversion Guidance	
try to include overlay cells in the next edition of S-401 and to report to IEHG (would have to be handled by S-98 if separate PS for overlay cells To be discussed whether it is possible and necessary to include them in S-401)	
finalize the CR for bridges as soon as the S-101 solution is stable. Multiplicity 1,* for category of opening to allow the encoding of bridges that have different opening spans. Attribute category of opening span also for the opening span and Encoding instruction: category only encoded for opening span, if more than one span and more than one categories of those spans.	

take the CR of Gaël regarding distanceUnitOfMeasurement into account for the conversion guidance	
<ul style="list-style-type: none"> - continue as proposed in the presentation when a stable PCB is available, contribution of all members via the discussion forum - develop test data based on the input from Laszlo and René - amend the Conditional Symbologies on the basis of available CS (OpenCPN) or CS of other manufacturers - consider real world pictures as a solution for the display of multiple notice marks at the same spot - create a tree structure for the PC - create the XML for the PC. (with the support of Mikan)	
continue the development of a DCEG for S-401 taking into account the decisions of IEHG. (with all members)	
take Helipad, Dolphin, Bollard and Mooring Area into account for the conversion guidance	
Denise	
clarify with Jeff the best way forward regarding the attributes catbun and SupplyService and inform Bernd, who will then finalize the CR (together with Gaël)	
update the CR 422 ("VHF activated" has been replaced by "radio activated" in the registry. The symbol and the line in the Lookup Tables should be added to the European standard and to the S-401 PC.)	
prepare the draft EG and FC 2.6 until 12.07.2024.	
reach out to Tom Bovey regarding S-501 developments to determine whether there will be similar challenges faced by S-501 regarding Interoperability with S-101	
submit CR to delete the enumerations 7 and 14 of techniqueOfVerticalMeasurement and to add the enumeration 15 in edition 2.6	
start with the development of the inland specific feature related pages of the DCEG on the basis of the S-101 DCEG 1.2.0 and the amendment of the maritime feature related pages when edition 2.0.0 of the S-101 DCEG is available. [10 4f S-101 Annex A_DCEG Edition 1.2.0.20231016_Working.doc] (together with Bernd and Gaël)	
ask Caris and Esri whether they can develop test cells. The cells provided by Laszlo and René can be taken into account, but cells with features in a geometric pattern (on the correct background of DEPARE or LNDARE) would make checks easier	
check the possibilities of APAN as a collaboration platform	
update the report to HSSC in time for the HSSC meeting in Japan. (together with Bernd)	done
update regulatory status, coverage and contact persons in the IENC ppt.	
investigate whether it would be possible to display the status of the CRs in the overview on the discussion forum (pending, adopted, rejected).	
Friedhelm	
keep track of S-101 developments and the consequences for IENCs (together with Cameron, Tom, René, Gert, Gaël and Patrick.)	
Gaël	
clarify with Jeff the best way forward regarding the attributes catbun and SupplyService and inform Bernd, who will then finalize the CR (together with Denise)	

contact Jeff and clarify whether we can assign a 17... identifier for the attribute locationMRN from the HYDRO domain for use in 2.6 or IHO is going to assign a code from the S-57 range of numbers and to inform Bernd and Denise.	
integrate all adopted changes for 2.6 in the S-401 FC	
keep track of S-101 developments and the consequences for IENCs (together with Cameron, Tom, René, Friedhelm, Gert and Patrick.)	
integrate the changes regarding CONDTN_3, STATUS_18 and inDispute in the S-401 FC	
identify the necessary associations for the S-401 FC (together with Gert)	
encode the associations in the draft S-401 FC	
finalize edition 1.1.0 of the S-401 FC taking also adopted CRs for edition 2.6 into account. This version should then be tested in the viewer of the S-100 test bed and published and registered, together with edition 1.1.0 of the PS.	
submit a CR regarding distanceUnitOfMeasurement	
add PICREP, INFORM, NINFOM to all features in the S-401 FC that have these attributes in Edition 2.5.	
add all enumerations of 2.5 (and 2.6) to the S-401 FC	
include Helipad, Dolphin, Bollard and Mooring Area in the S-401 FC when they are finalized for S-101.	
start with the development of the inland specific feature related pages of the DCEG on the basis of the S-101 DCEG 1.2.0 and the amendment of the maritime feature related pages when edition 2.0.0 of the S-101 DCEG is available. [10 4f S-101 Annex A_DCEG Edition 1.2.0.20231016_Working.doc] (together with Bernd and Denise)	
start working on the inland specific features of the Conversion Guidance (together with Gert)	
produce a French version of the IENC ppt	
Gert	
amend the Symbol Library and the Lookup Tables for "radio activated" sensor.	
update the CR 425 (copy "RESARE", "CATREA27", "SY(ESSARE01);LC(ESSARE01)", "5", "S", "STANDARD", "26010" "RESARE", "CATREA28", "SY(PSSARE01);LC(ESSARE01)", "5", "S", "STANDARD", "26010" to the Lookup Tables)	
add the new lines for the Brazilian notice marks (CR 435) to the Lookup Tables.	
discuss the CR regarding CEVNI with the CESNI secretariat and submit it after finalization and the adding of the concepts (together with Bernd)	
check if COMEX ² could contribute to the development of test charts for 2.6 (and S-401)	
keep track of S-101 developments and the consequences for IENCs (together with Cameron, Tom, René, Friedhelm, Gaël and Patrick.)	
identify the necessary associations for the S-401 FC (together with Gaël)	
check the consequences of the decision of IHO regarding the svg profile when it is available	
start working on the inland specific features of the Conversion Guidance (together with Gaël)	
start working on the copied and amended features (check all existing maritime rules) Ask Jeff for first draft of S-101 to S-57 conversion guidance (together with Tom)	

check the possibilities of Github , which is especially targeting developers, as a collaboration platform for IEHG	
Li	
submit a CR with the necessary amendments of the minimum content for the Chinese inland waterways	
update regulatory status, coverage and contact persons in the IENC ppt.	
Michael	
update CR 437 (inland specific check with Warning)	done
Mikan	
<ul style="list-style-type: none"> - continue as proposed in the presentation when a stable PCB is available, contribution of all members via the discussion forum - develop test data based on the input from Laszlo and René - amend the Conditional Symbologies on the basis of available CS (OpenCPN) or CS of other manufacturers - consider real world pictures as a solution for the display of multiple notice marks at the same spot - create a tree structure for the PC - create the XML for the PC. (in support of COMEX ²)	
Patrick	
send an example how the line should look like to Gert. Gert to register the symbol and the line style. Draw up and submit a CR. (or René)	
keep track of S-101 developments and the consequences for IENCs (together with Cameron, Tom, René, Friedhelm, Gert, Gaël)	
René	
send an example how the line should look like to Gert. Gert to register the symbol and the line style. Draw up and submit a CR. (or Patrick)	
update and resubmit the CR 419 (Encoding Instruction should be added to encode the refgag only if it does allow a reliable calculation of the bridge clearance)	
keep track of S-101 developments and the consequences for IENCs (together with Cameron, Tom, Friedhelm, Gert, Gaël and Patrick.)	
S-100 representatives of IEHG (Denise, Gaël, Gert)	
inform IHO that IEHG agrees in principle with the proposal regarding roofs, but would need additional enumerations for the category of structure (e.g. the already registered “building above navigable water”) and to clarify whether “bulk” is in this case also covering break bulk.	
register the changes of CR 423 in the registry	
register the changes contained in CR 430, 435 (enumerations 124-127, MARSYS 13, svgs will be provided by Vitor) and 437 (when submitted).	
register requested changes for 2.6 as soon as possible.	
solve the inconsistencies in the registry [10 2e errors in the S 100 registry 2023 10 25.docx]	
ask IHO whether a quattro fuel (Inland S-57 / S-401 / Maritime S-57 / S-101) would be taken into account. [remark: does not seem necessary, because dual fuel should end 2029 in maritime]	

Tom	
keep track of S-101 developments and the consequences for IENCs (together with Cameron, René, Friedhelm, Gert, Gaël and Patrick.)	
start working on the copied and amended features (check all existing maritime rules) Ask Jeff for first draft of S-101 to S-57 conversion guidance (together with Gert)	
Vitor	
provide the svg symbols and raster symbols of the Brazilian notice marks and the additional lines for the Lookup Tables	
update regulatory status, coverage and contact persons in the IENC ppt.	
update the Spanish version and to produce a Portuguese version of the IENC ppt	
investigate the possibilities for the next meeting	