



# 12<sup>th</sup> Meeting of the Hydrographic Services and Standards Committee

## Report of IEC activities affecting HSSC

### Agenda Item 7.4



1. Introduction of S-101 or S-100 into **IEC 61174 ECDIS** standard
2. Data cyber security requirements for navigation equipment (**IEC 63154**)
3. **S-421: Route Plan** based on S-100 (**IEC 63173-1**)
4. Secure exchange and communication of S-100 based products (**SECOM**) (**IEC 63173-2**)



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# INTRODUCTION OF S-101 OR S-100 INTO IEC 61174 ECDIS STANDARD

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1. IHO informed IEC TC80/Plenary Oct 2019 about the plan to introduce S-101 into IEC 61174 ECDIS standard (Dual fuel S-57 & S-101)
2. The secretariat of IEC TC80 has a plan to ask opinion of the National Committees of IEC TC80 about **suitable time schedule to open IEC 61174 for maintenance (using Questionnaire (Q))**
  - This is still **waiting IMO MSC approval of IMO NCSR-7 request** to include S-101 compliance of ECDIS into the work program of NCSR
  - **On the day of publishing a New work item Proposal (NP) or Questionnaire (Q) for vote by the National Committees of the IEC TC80, the proposed topic should be mature enough for the National Committees to understand that now it is the time to create the new edition of the IEC 61174 ECDIS**
3. **Typical time schedule for IEC maintenance work**
  - **2 years** of committee work to draft the Committee Draft for Vote (CDV) **plus 1 year** of voting & comment process to complete the draft as International Standard
  - **All technical details referenced by the draft for an IEC standard should be completed before the IEC workgroup completes the CDV**
    - **S-101 related IHO standards** including both the **specification and testing part** should be **published as final versions before the assumed completion of the CDV**



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# DATA CYBER SECURITY REQUIREMENTS FOR NAVIGATION EQUIPMENT (IEC 63154)

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1. The IEC standard requesting authentication of all external data files at import into a navigation equipment is IEC 63154
  - The work on this standard begun in 2017. The work has reached CDV (Committee Draft for Vote) stage and the **CDV was approved by voting in September 2020**
  - The **next step is creation of FDIS** (Final Draft International Standard), voting on the FDIS and the **publication as International Standard is forecasted for August 2021**
2. IEC raised this issue of cyber security for the first time at HSSC-10, May 2018
  - The background information and analysis are still the same as the years before. Also, the conclusion of IEC – the authentication of data from IHO sources should be overarching i.e. including all auxiliary files
3. IEC has noted progress by IHO
  - **The planned ed 5.0.0 of S-100 will complete the Part 15 for this issue**
  - **For S-57 ENC charts IEC has noted that work is still going on by IHO ENCWG.** The issue has been discussed at ENCWG meetings 2018, 2019 and 2020. Meetings have set tasks to both draft solution for the issue (i.e. new edition of S-63) and to seek approval of industry for the solution
  - IEC understands that international organizations need time to develop and agree standards. Therefore, **currently IEC is pleased to follow up the progress by IHO ENCWG**



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# S-421: ROUTE PLAN BASED ON S-100 (IEC 63173-1)

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1. IEC TC80 has established WG17 to address CMD5 (Common Maritime Data Structure)
  - The workgroup was created in October 2015. Convenor is Dr. Kwangil Lee (KMOU, Korea). Within IEC TC80 all CMD5 works related with shipborne system will be handled in this workgroup. IEC TC80 applied and was granted S-100 domain ownership in December 2016.
2. The base of S-421 is already published Route Exchange, IEC 61174 Ed4 ECDIS, Annex S, extended by ideas from Testbeds, especially “STM validation” and “SMART navigation”. Timeline is:
  - The related IEC workgroup has completed drafting of the **CDV – currently on voting until 1<sup>st</sup> Jan 2021**
  - IEC approval process consisting of CDV and FDIS comments & voting will use the remaining of year 2020 plus year 2021 and the **publication of IEC 63173-1 is assumed around 2<sup>nd</sup> half of 2021**
3. The object model of the S-421 Route Plan Exchange reflects the needs of the user
  - **11 use cases described in details**, see the report of IEC for details



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# SECURE EXCHANGE AND COMMUNICATION OF S-100 BASED PRODUCTS (SECOM) (IEC 63173-2)

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## Introduction

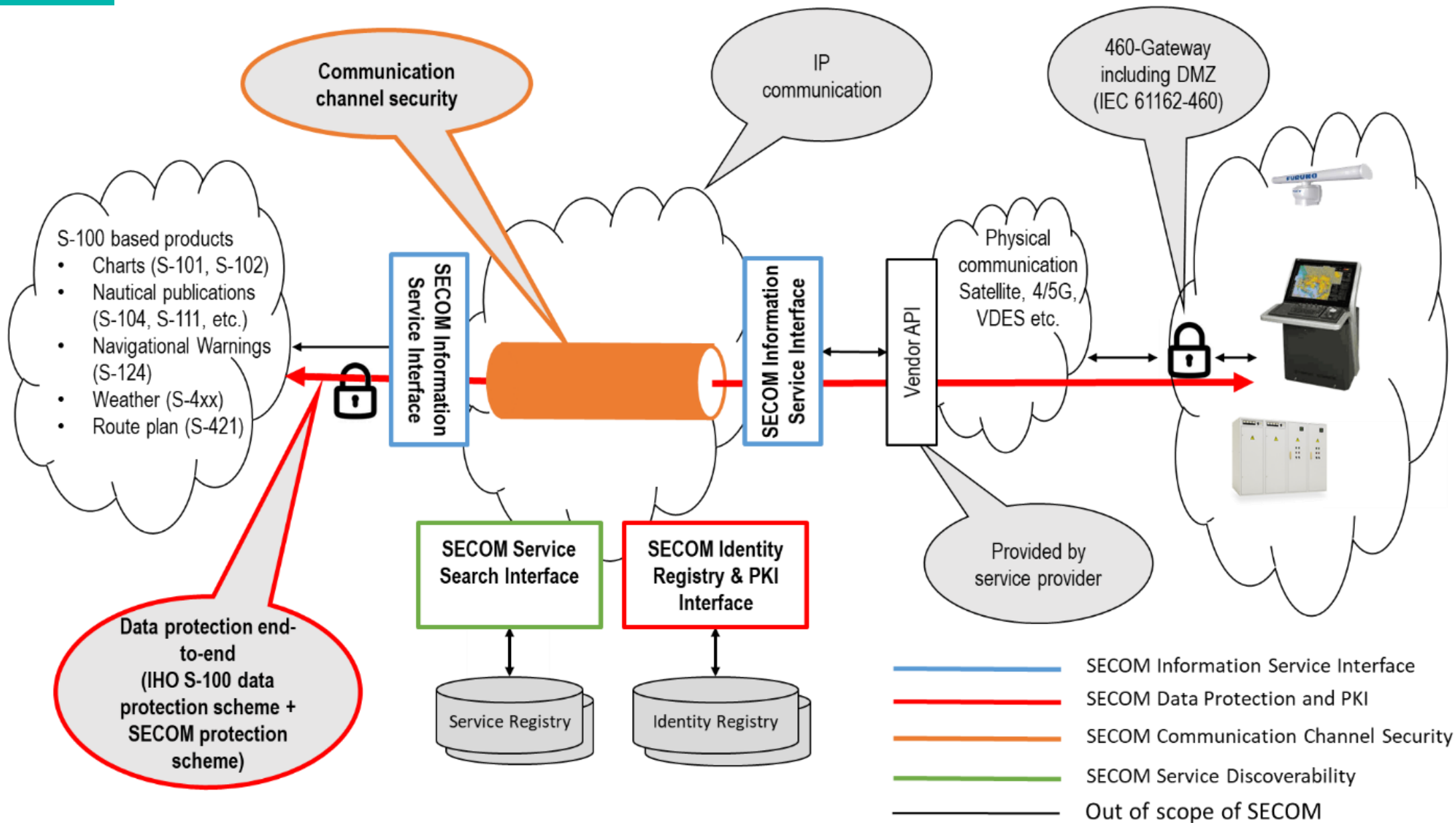
1. The background of the SECOM is the e-Navigation testbed “STM validation project” which tested e-Navigation related file transfers using SOA (Service Oriented Architecture) principles with about 400 real ships and multiple VTS/Ports.
2. The IEC 63173-2 standard is intended to be a **gap-filler to provide standardized communication infrastructure between shore and ships for bi-directional transfer of files related to the e-Navigation**. It is assumed that majority of such files may be based on IHO S-100 although the SECOM infrastructure is in principle capable to transfer any anonymous file. Excluded from SECOM is services which need data streaming and which cannot be converted as a series of separate data files.
3. Latest version available is a **Committee Draft (CD), IEC TC80/956/CD (Feb 2020)**. The Committee Draft for Vote (**CDV**) is planned for **October 2021**.
4. The planned **publication as international standard is 2<sup>nd</sup> half of 2022**.



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# SECURE EXCHANGE AND COMMUNICATION OF S-100 BASED PRODUCTS (SECOM) (IEC 63173-2)

International Hydrographic Organization



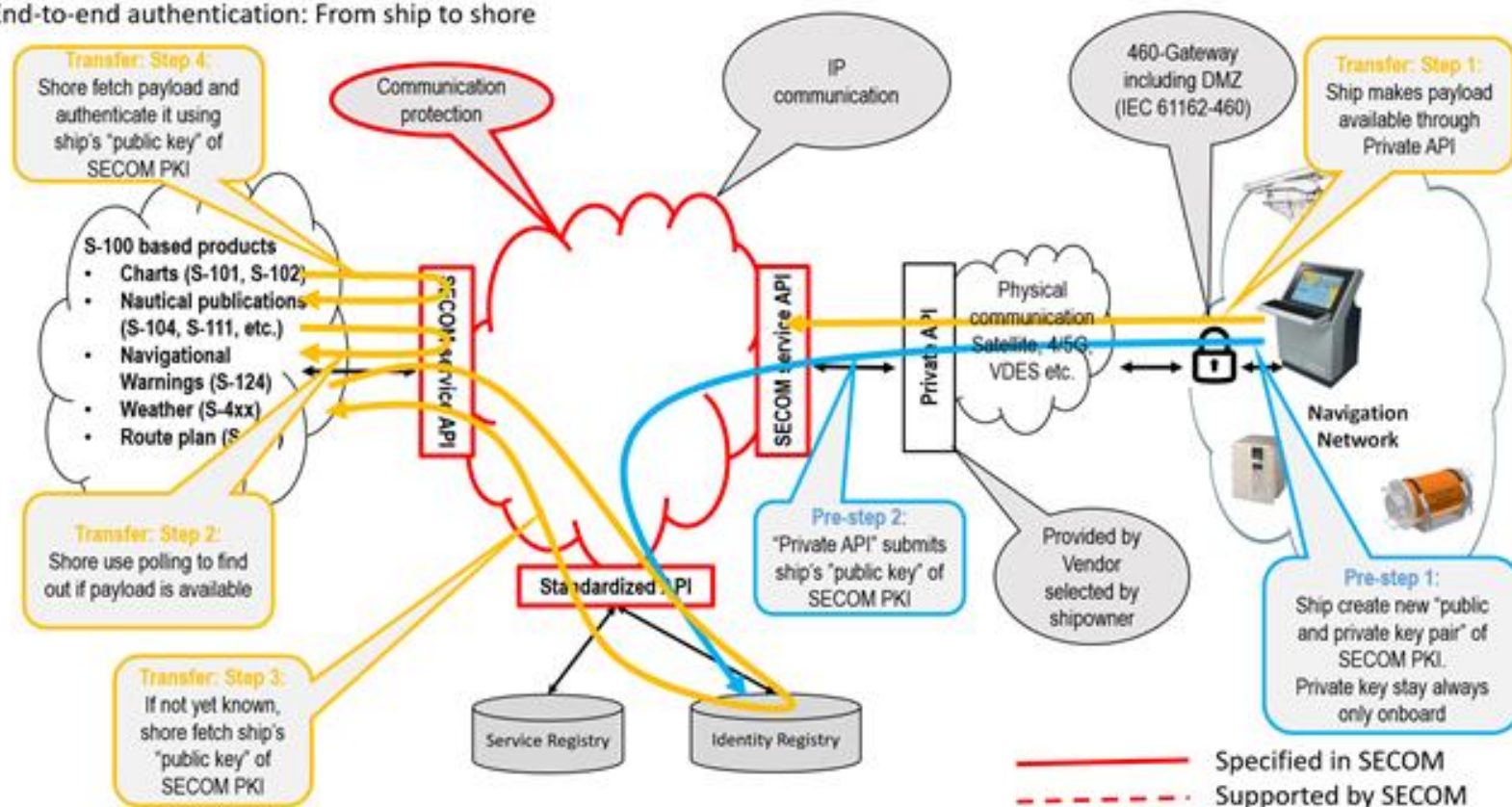


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# SECURE EXCHANGE AND COMMUNICATION OF S-100 BASED PRODUCTS (SECOM) (IEC 63173-2)

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End-to-end authentication: From ship to shore



## Technical detail highlights for HSSC

- SECOM utilize S-63 and S-100 Part 15 security related technical methods
- SECOM provides "gap-filling" for items not provided by IHO S-63 and S-100 Part 15
  - For example protection of transfer from ship to shore
- SECOM provides standardized API for connection to "Service registry" and "Identity registry"
  - Such registries could be provided by Maritime Connectivity Platform (MCP)





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# **ACTION REQUESTED OF HSSC**

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- Note:
  - Note the information provided