2018 수로학회 춘계 학술 발표 대회

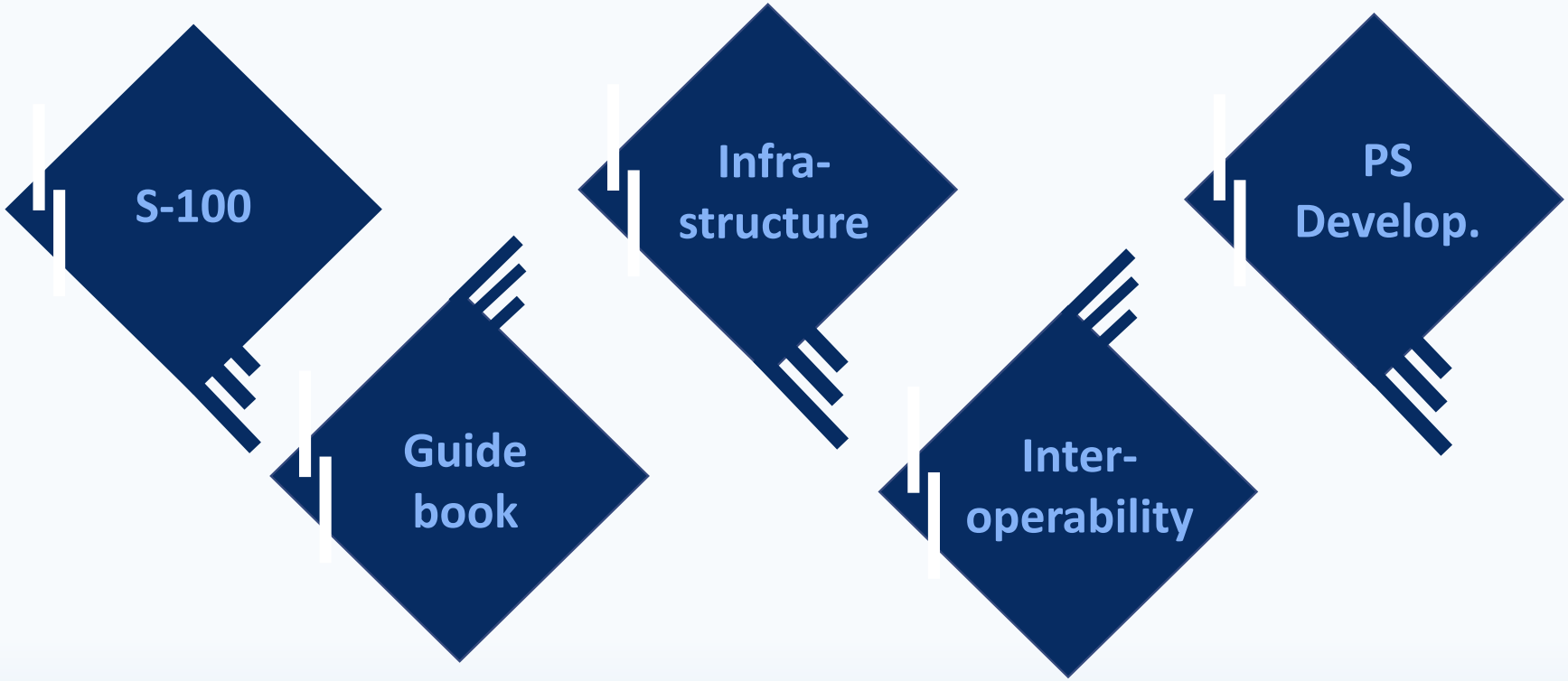
Current Status of the IHO S-100 development

10 May 2018

BAEK Yong(KHOA)

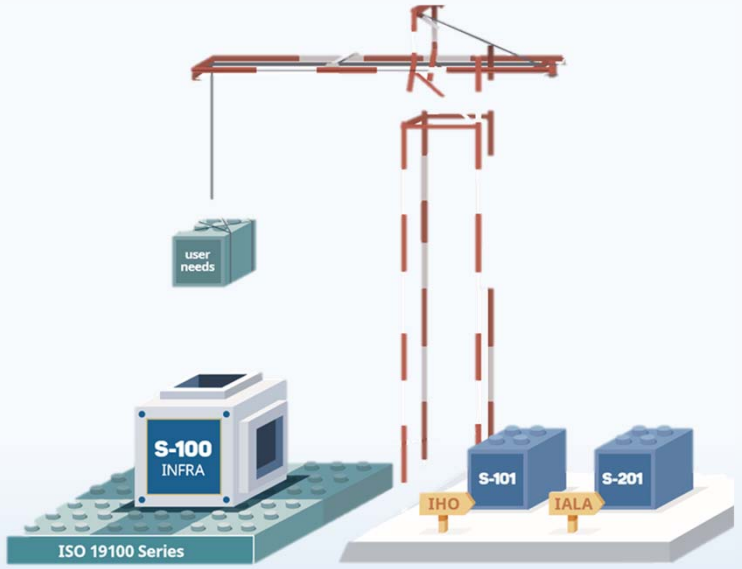
Korea Hydrographic
and Oceanographic Agency

Contents


S-100
Guide book
Infra-structure
Inter-operability
PS Develop.

1 S-100

- *Provides the data framework for the development of the next generation Electronic Navigational Charting products, as well as other digital products required by the hydrographic, maritime and GIS communities*



1 S-100

- S-100 Timeframes: 2 - 3 years
- S-100 edition 4.0.0(Dec. 2018)
  - Over 16 proposals were considered over a two and a half year period
  - Major Extensions include
    - ✓ Online Communication Extension requested by IALA
    - ✓ Scripting language support – requested by OEMs
    - ✓ Lua Portrayal support – requested by OEMs
    - ✓ Inclusion of bSpline Spatial – requested by WMO
    - ✓ Data Protection

S-100 Product Specification Guidebook

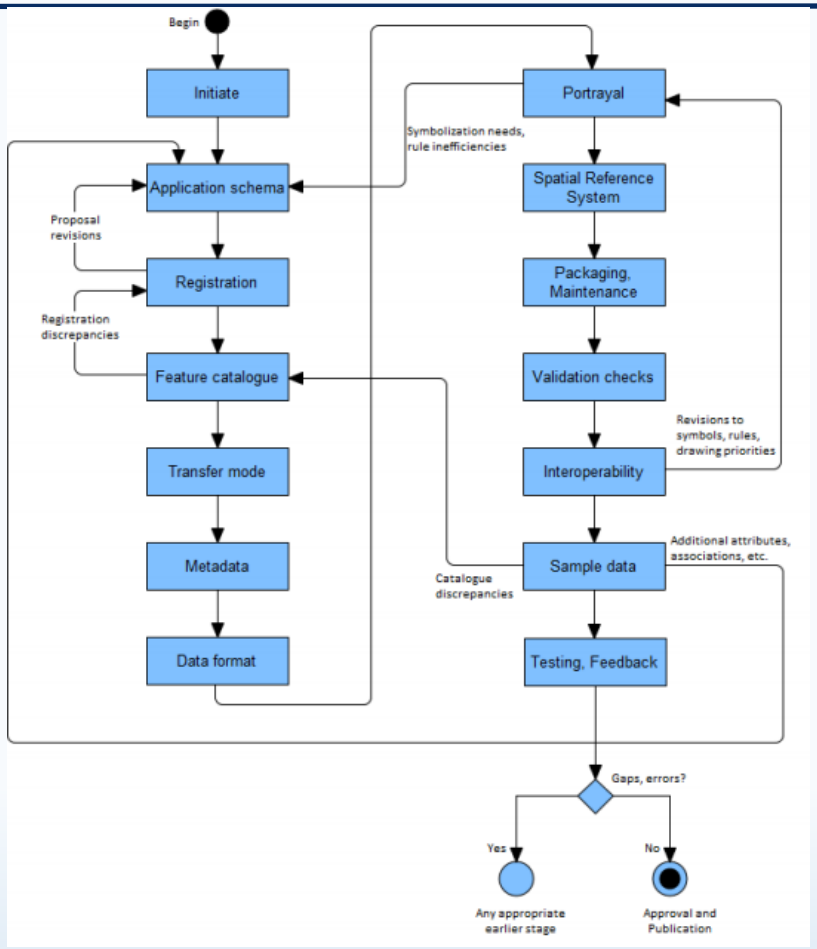
- S-100 is a framework for increased standardization
  - Difficult to decipher
  - Over 400 pages
  - 14 parts and counting
- Need for additional guidance for developers of product specifications
- Ensures specification harmonization

S-100 Product Specification Guidebook

- Two Parts
  - Content – defines the general content within S-100 utilizing plain language (mostly)
  - Execution – prescribes the general flow that should be followed to build a S-100 conforming product specification

2 S-100 Product Specification Guidebook

- Initiate
- Develop Data model
- Register new items
- Build a Feature Catalog
- Define data delivery
- Metadata
- Encoding
- Portrayal
- Validation and Data Quality
- Etc.....

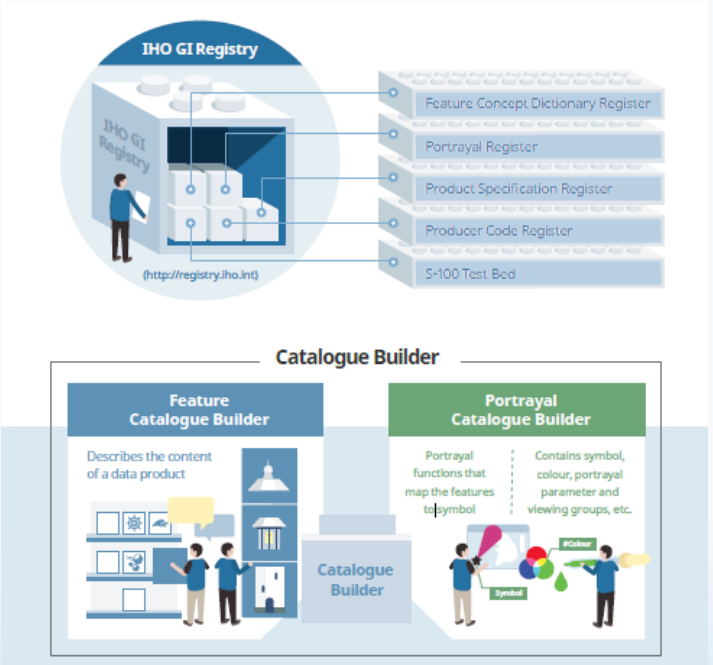


3 S-100 Infrastructure

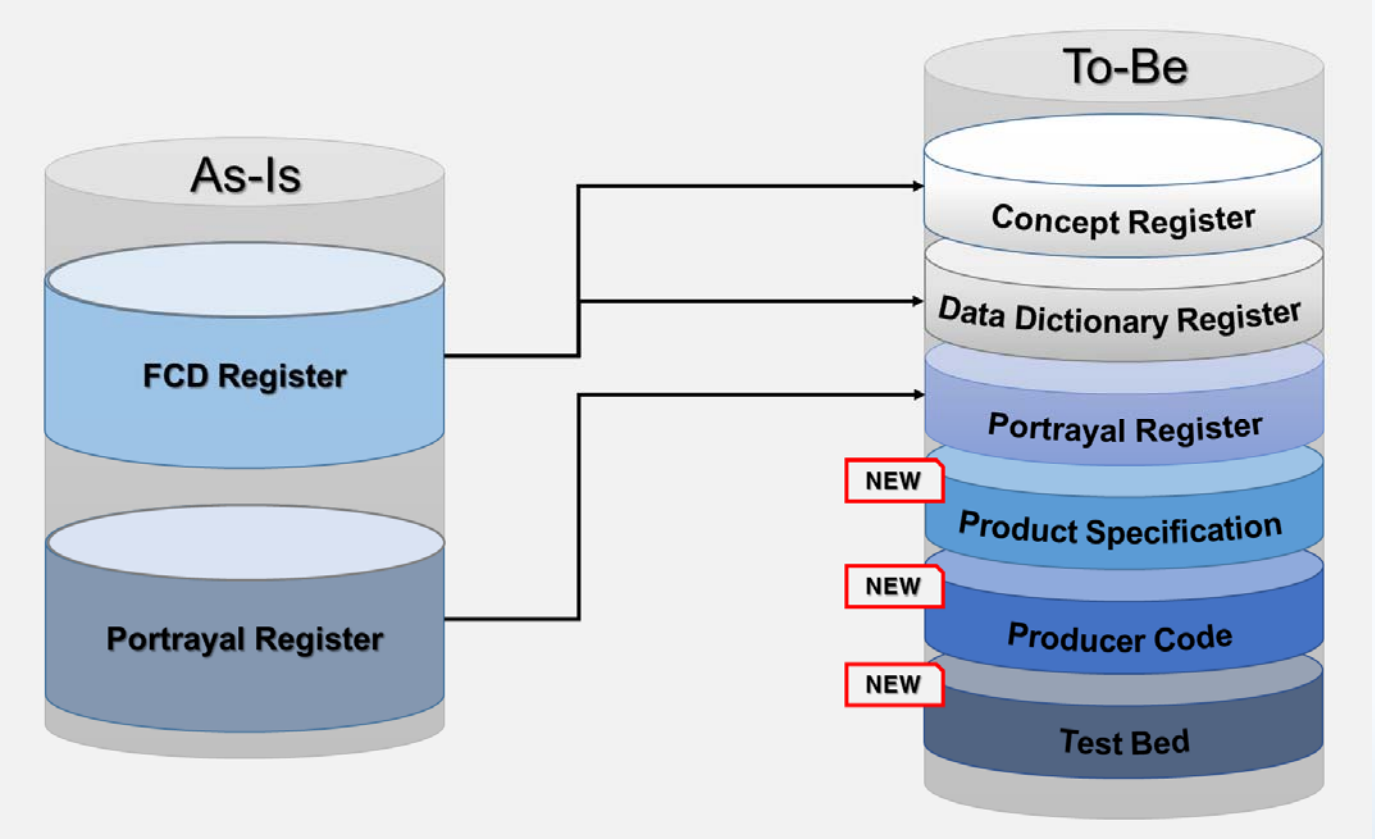
What is S-100 Infrastructure?

- Essential Framework for developing product specifications
  - Composition:
    - Geospatial Information registry
    - Feature Catalogue Builder
    - Portrayal Catalogue Builder
    - DCEG Builder *(refer to DCEG builder development)*

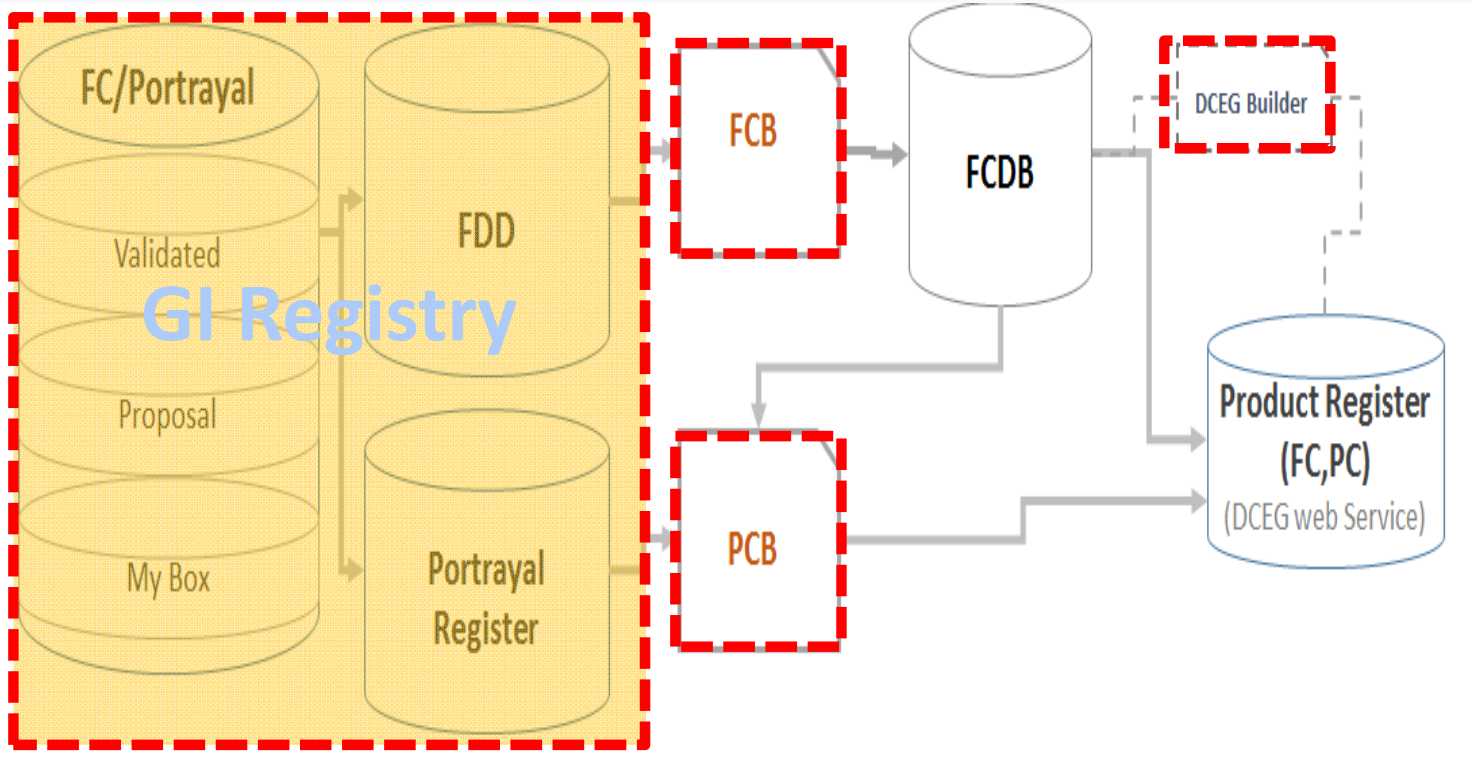
- Maintained by KHOA on behalf of the IHO



3 S-100 Infrastructure



3 S-100 Infrastructure



4 S-100 Interoperability Specification

- S-98 Specification for Data Product Interoperability in S-100 Navigation Systems(2019)

Specification No.	Title
S-101	Electronic Navigational Chart (ENC) / Cartes électroniques de navigation
S-102	Bathymetric Surface / Surface bathymétrique
S-104	Water Level Information for Surface Navigation / Information de hauteur d'eau pour la navigation de surface
S-111	Surface currents / Courants de surface
S-122	Marine Protected Areas / Aires marines protégées
S-124	Navigational warnings / Avertissements de navigation
S-411	Sea Ice (WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology [JCOMM]) Glace de mer (Commission technique mixte OMM-COI pour l'océanographie et la météorologie marine [JCOMM])
S-412	Met-ocean forecasts (JCOMM) Prévisions météo-océanographiques (JCOMM)

4 S-100 Interoperability Specification

- Structure of S-100 Interoperability Catalogue

Level 0: All interoperability processing is turned off.

Level 1: Feature types from different products, including S-101, are interleaved as specified by display plane and drawing priority information contained in the interoperability catalogue

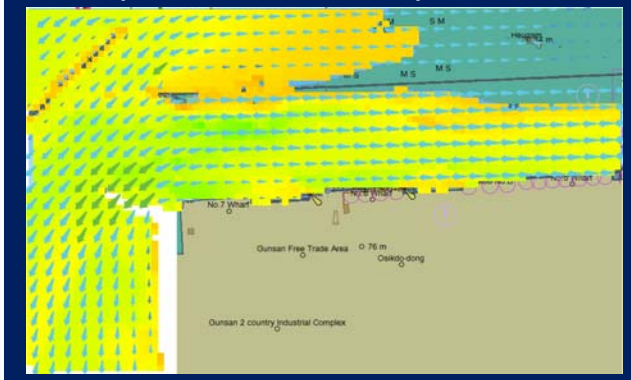
Level 2: If feature types in other products are determined to be superior to specific ENC feature types, the ENC feature types are suppressed.

Level 3: The ENC is treated as one of the components of the data stack, and selected feature instances from other products may be treated as being superior to or enhancing selected ENC feature instances.

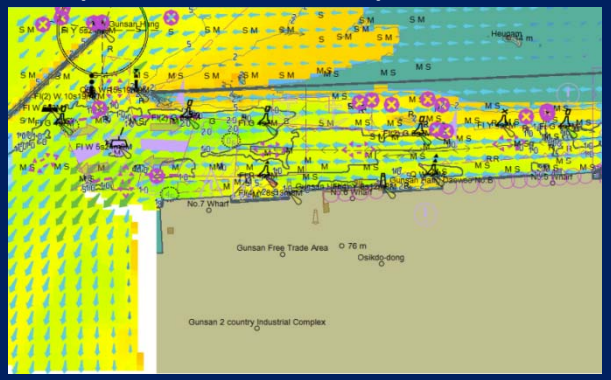
Level 4: This level is the same as Level 3, but permitted spatial queries and operations are explicitly defined using an adequate set of spatially-capable rules.

4 S-100 Interoperability Specification

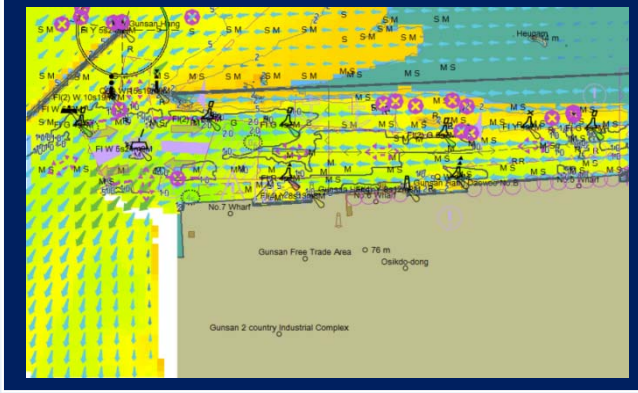
Level 0 (S-101 + S-102 + S-111)



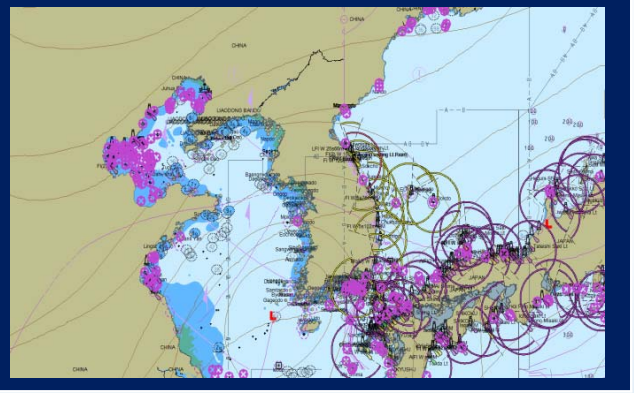
Level 1 (S-101 + S-102 + S-111)



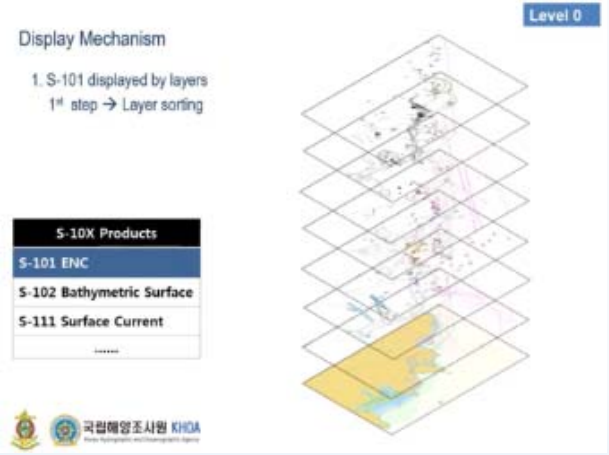
Level 2 (S-101 + S-102 + S-111)



Level 1 (S-101 + S-412)



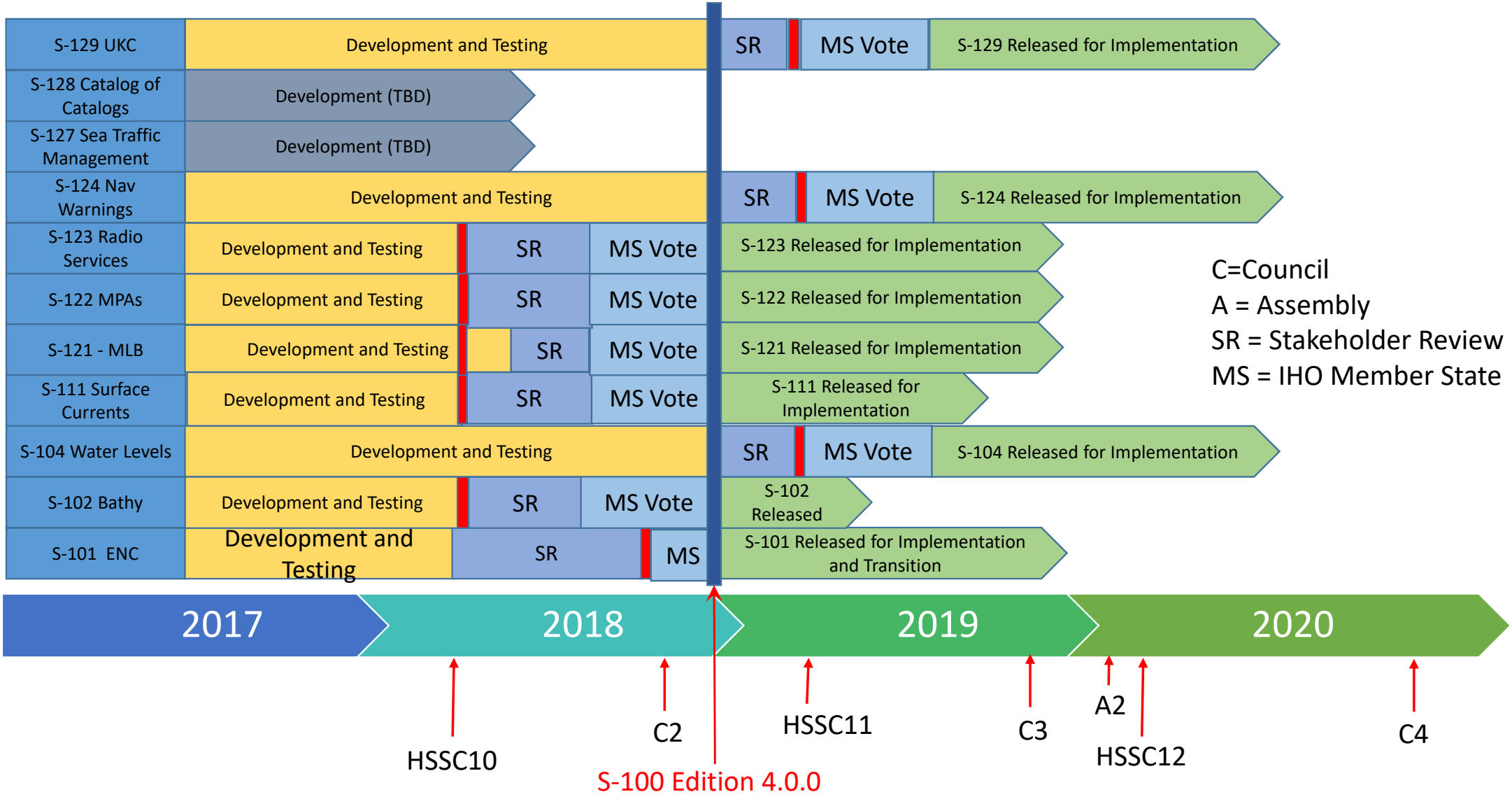
Interoperability Video



5 S-101-Plan

- April –
  - Send out S-101 for a final round of comments
  - Build out the S-101 Feature & Portrayal Catalogue using the IHO's Catalogue Builder
- June –
  - Hold a project team meeting (June 19-20, Monaco)
    - Adjudicate any comments
    - Face to face meeting for Validation and how new features/attributes should be portrayed
    - Shake out any large technical issues
    - Note: S-101 will utilize the Lua portrayal mechanism rather than XSLT
      - Will require an update to the PCB
      - S-100 will require an update to accommodate this methodology
- July – August
  - Finalize documentation
  - Update S-57 to S-101 convertor
- August – November
  - IHO distributes S-101 for Member State Vote
- December
  - Publish edition 1.0.0 of S-101
  - Needs to be published in conjunction with Edition 4.0.0 of S-100

Components	Edition 1.0.0 (2018)	Edition 2.0.0 (2020)	Edition 3.0.0 (2022)
Main Documentation	✓	✓	✓
Feature Catalogue	✓	✓	✓
Portrayal Catalogue	Partial	✓	✓
Validation	Partial	✓	✓
Data Classification and Encoding Guide	✓	✓	✓
Encoding Format	✓	✓	✓
Encryption		✓	✓
Alerts and Indications		✓	✓
Full Test Data Sets for Type approval		Partial	✓
Notes	Portrayal will be limited to S-52 rules translated to LUA	Edition 2.0.0 refines all the additional rules	**Operational Edition**


S-129 UKC
Development and Testing
SR
MS Vote
S-129 Released for Implementation
S-128 Catalog of Catalogs
Development (TBD)
S-127 Sea Traffic Management
Development (TBD)
S-124 Nav Warnings
Development and Testing
SR
MS Vote
S-124 Released for Implementation
S-123 Radio Services
Development and Testing
SR
MS Vote
S-123 Released for Implementation
S-122 MPAs
Development and Testing
SR
MS Vote
S-122 Released for Implementation
S-121 - MLB
Development and Testing
SR
MS Vote
S-121 Released for Implementation
S-111 Surface Currents
Development and Testing
SR
MS Vote
S-111 Released for Implementation
S-104 Water Levels
Development and Testing
SR
MS Vote
S-104 Released for Implementation
S-102 Bathy
Development and Testing
SR
MS Vote
S-102 Released
S-101 ENC
Development and Testing
SR
MS
S-101 Released for Implementation and Transition
C=Council
A = Assembly
SR = Stakeholder Review
MS = IHO Member State
2017
2018
2019
2020
HSSC10
C2
S-100 Edition 4.0.0
HSSC11
C3
A2
HSSC12
C4

S-100 based PSs