



# **S-100 Infra Updates including S-100 Registry and Tools**

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**IHO S-100WG8 / 13 - 17 November 2023 / Singapore**



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# 1. IHO GI REGISTRY

- S-62 Producer Code based on S-100
  - New S-62 Producer Code Register based on S-100 was develop
  - (S-100) 32 proposals from 13 countries and 5 institutes since 2023
  - (S-57) 18 amendments since 2020

International Hydrographic Organization

IHO Geospatial Information Registry

Producer Code Register (S-62)

Home / GI REGISTERS / Producer Code Register

Introduction Codes (S-100) Codes (S-57)

Category:  Official  Non-Official Status: Valid

No.	Country	Agency Name	Code (Num)	Code (Alpha)	Products	Accepted Date	Status
1	-	International Centre for ENC (IC-ENC)	02030	00IC	S-101, S-102, S-104,...	2023-02-10	Valid
2	Viet Nam	Viet Nam Maritime Safety-North (VMS-N)	01511	V184	S-101, S-102, S-104,...	2023-02-24	Valid
3	-	International Hydrographic Organization (IHO)	01810	00AA	S-101, S-102, S-104,...	2023-02-28	Valid
4	Canada	Canadian Coast Guard	00052	CA02	S-123, S-124, S-127,...	2023-03-15	Valid
5	Belgium	Maritime and Coastal Services - Flemish Hydrography	00030	BE00	S-101, S-102, S-104,...	2023-03-29	Valid
6	Norway	Electronic Chart Centre	00341	N100	S-101, S-102, S-104,...	2023-05-11	Valid
7	Netherlands	Koninklijke Marine Dienst der Hydrografie / CZSK	00310	NL00	S-101, S-102, S-104,...	2023-05-12	Valid
8	Finland	Finnish Transport and Communications Agency (Traficom)	00160	FI00	S-101, S-102, S-121,...	2023-06-21	Valid
9	Canada	Canadian Hydrographic Service (CHS)	00050	CA00	S-101, S-102, S-104,...	2023-06-21	Valid
10	-	Environmental Systems Research Institute (ESRI)	20046	004E	S-101, S-102, S-104,...	2023-07-01	Valid
11	-	CARIS	07196	001C	S-101, S-102, S-104,...	2023-07-05	Valid
12	Spain	Instituto Hidrográfico de la Marina (IHM)	00450	ES00	S-101, S-102, S-104,...	2023-07-06	Valid
13	-	PRIMAR Regional ENC Coordinating Centre (PRIMAR RENC)	02020	00PM	S-101, S-102, S-104,...	2023-08-07	Valid
14	France	Service Hydrographique et Océanographique de la Marine...	00170	FR00	S-101, S-102, S-104,...	2023-08-21	Valid
15	France	Commandant de la zone maritime Manche et mer du Nor...	00171	FR01	S-124	2023-08-22	Valid

Detail View

Product(s)	S-101, S-102, S-104, S-111, S-128, S-129
Category	IHO Member States
Country Name	Viet Nam
ISO Alpha-2	VN
ISO Alpha-3	VNM
Producer	Viet Nam Maritime Safety-North (VMS-N)
Producer Code (Alpha)	V184
Producer Code (Numeric)	01511
Date Accepted	2023-02-24
Date Amended	2023-02-28 20:07:59

CLOSE



# 1. IHO GI REGISTRY

- Current status of Association/Role
  - ASSOCIATION/ROLE is not managed in the S-100 GI Registry
    - S-100 5.0.0 Part2A states that it is not implemented in the registry
  - FCB(S-100 Tool-kit) has its own Local DB and is not being updated.
  - In the future, it is necessary to manage it in the Registry and use it in FCBs

## S-100 5.0.0 Part2a Concept and Data Dictionary Registers

### 2a-3.2 Relationship to the ISO Register and Feature Concept Dictionary Models

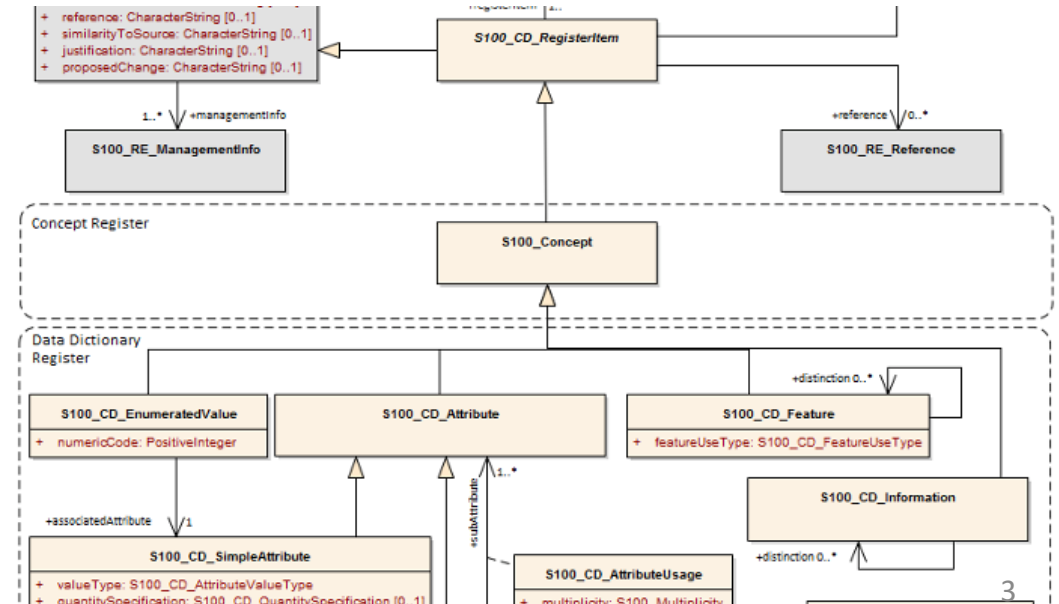
Registers for associations and roles are not currently implemented within the IHO GI Registry and the corresponding ISO types are therefore not included in Figure 2a-1. Also, the IHO GI Registry includes additional Registers (for Portrayal, Producer Codes, Product Specifications, and Metadata) which are not shown in Figure 2a-1.

### Association/Role in FCBs

```

> t_featureassociation
> t_informationassociation
> t_role
> t_roletype
  
```

## S-100 5.0.0 Part2a Figure 2a-2 – IHO Concept and Data Dictionary Registers





# 1. IHO GI REGISTRY

- Association/Role Information Management
  - To reduce inconsistency, Feature/Information Association and Role shall be managed through Registry
  - Provide an API that can be connected to FCB

## 1. Role

Domain	IHO Hydro	listbox
Name	No Message On Hand	text
CamelCase	noMessageOnHand	text
Definition	An indication of no active message.	text

## 2. Feature Association / Information Association

Domain	IHO Hydro	listbox
Name	No Message On Hand	text
CamelCase	noMessageOnHand	text
Definition	An indication of no active message.	text

Role	testA	Listbox (Importing the existing ROLE value)
Role	testB	Listbox (Importing the existing ROLE value)

name →  
code →  
definition →

The screenshot shows the 'Data Dictionary Register' interface. At the top, there are statistics for different types: Feature Type (374), Information Type (30), Attribute Type (734), Complex Type (116), Enumeration Value (2388), and Codelist Value (453). Below these, three categories are highlighted with red dashed boxes: Feature Association (20), Information Association (20), and Role (20). There are filters for Domain (set to ALL), Status (Valid), and Category (Name). A search bar is also present. The main table lists items with columns: Item ID, Name, Camelcase, Definition, Domain, Status, and Date Accepted.

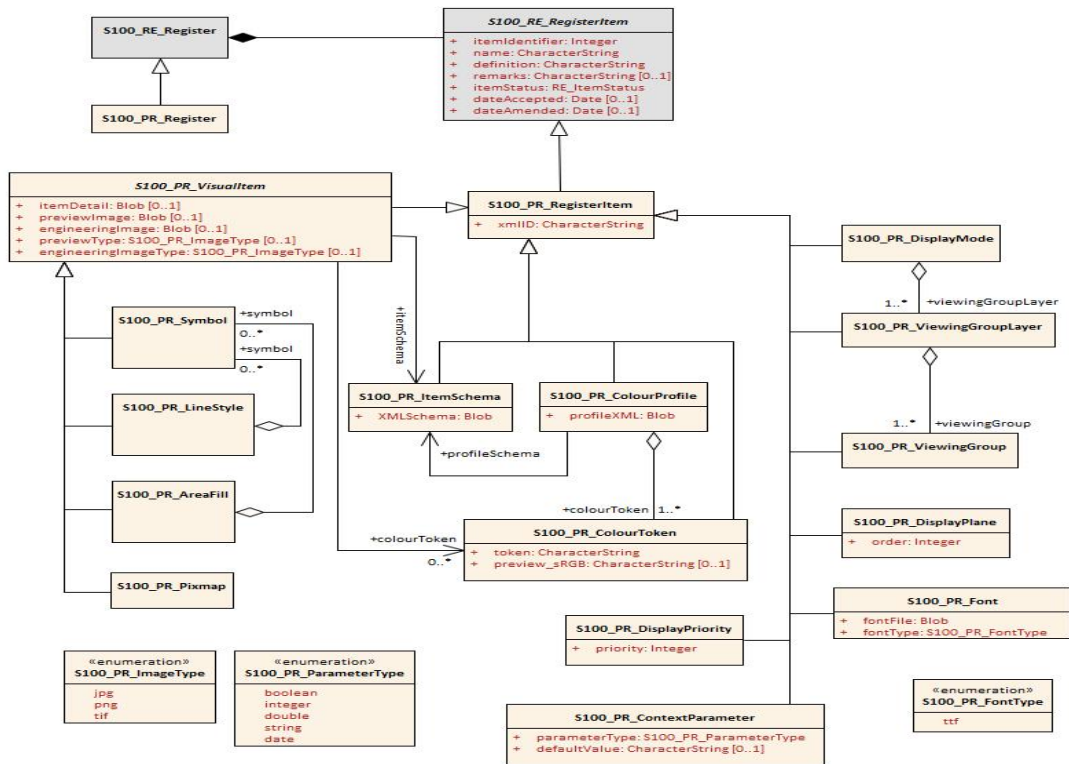
Item ID	Name	Camelcase	Definition	Domain	Status	Date Accepted
639	Hulk	Hulk	The hull of a wrecked or condemned shi...	IHO Hydro	Valid	2023-01-27
623	Separation Zone or Line	SeparationZon...	A zone or line separating the traffic lane...	IHO Hydro	Valid	2022-12-16
624	Dock Area	DockArea	An artificially enclosed area within whic...	IHO Hydro	Valid	2022-12-16
625	Lock Basin	LockBasin	A wet dock in a waterway, permitting a ...	IHO Hydro	Valid	2022-12-16
626	Update Information	UpdateInform...	Update Information metadata feature is...	IHO Hydro	Valid	2022-12-16



# 1. IHO GI REGISTRY

- Current status of Portrayal Register
  - Portrayal Register provides 15 ITEMS including Viewing Group according to S-100 4.0.0
  - S-100 5.0.0 Portrayal Register Model adds 6 ITEMS

S-100 4.0.0, Figure 2b-2 – Portrayal Register information model



Portrayal Register in S-100 GI Registry

IHO Geospatial Information Registry

Please sign in | Sign in | Join | KHOA Korea Hydrographic and Oceanographic Agency

### Portrayal Register

Home / GI REGISTERS / Portrayal

Symbol	986	Line Style	63	Area Fill	25	Font	4	Others	
Display Mode	4	Display Plane	2	Context Parameter	19	Symbol Schema	1	LineStyle Schema	1
Viewing Group	162	Viewing Group Layer	8	Colourprofile Schema	1	Areafill Schema	1	Pixmap schema	1
Colour Token	93	Colour Profile	3	Cascading style sheet	2	Display priority	20	Pixmap	1

Domain: ALL | Status: Valid | Search: [ ]

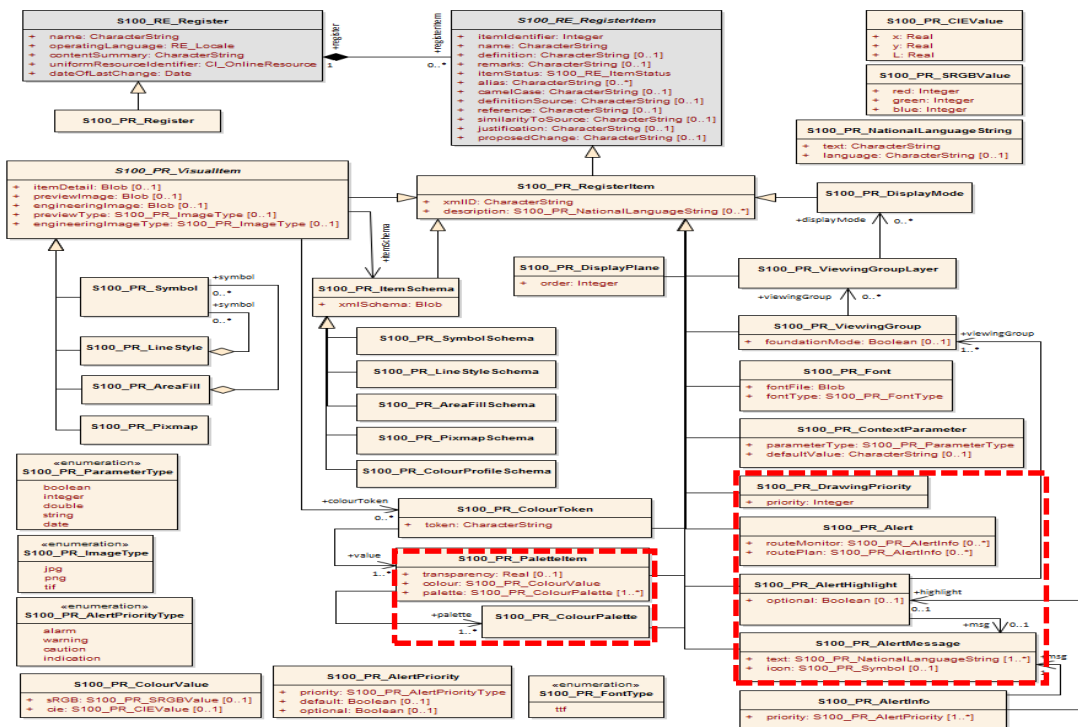
[symbolSchema] Portrayal Details	
Domain	IHO Hydro
Name	symbolSchema1
Definition	schema for symbols
Remarks	
Reference Source	Unspecified
XML Schema	SHOW/HIDE



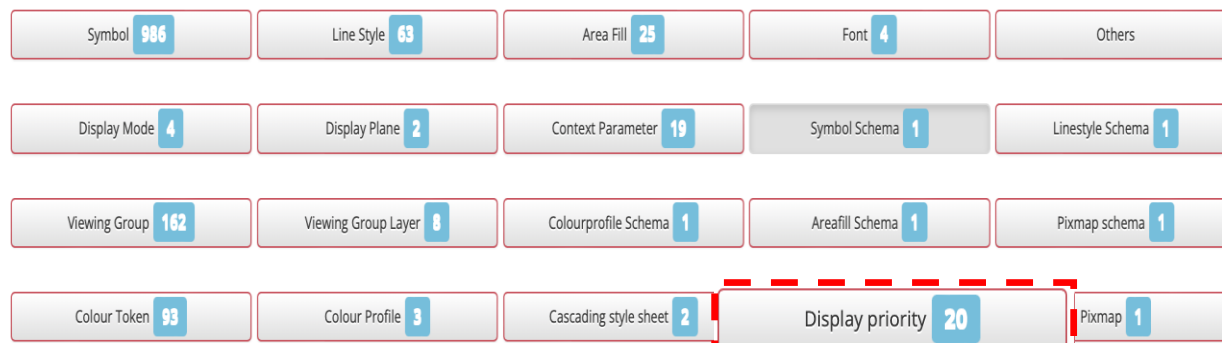
# 1. IHO GI REGISTRY

- Portrayal Register Updates following S-100 Ed 5.0
  - Add 6 Items and delete 1 Item to Portrayal Register
  - Application of existing Portrayal Register approval process
    - Aproval Process in PR : DCB-RM

S-100 5.0.0, Figure 2b-2 – Portrayal Register information model

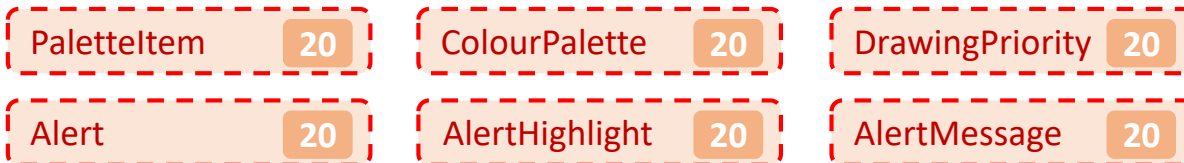


Portrayal Register in S-100 GI Registry



Delete Item

Add Items





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# 2. FEATURE CATALOGUE BUILDER

International Hydrographic Organization

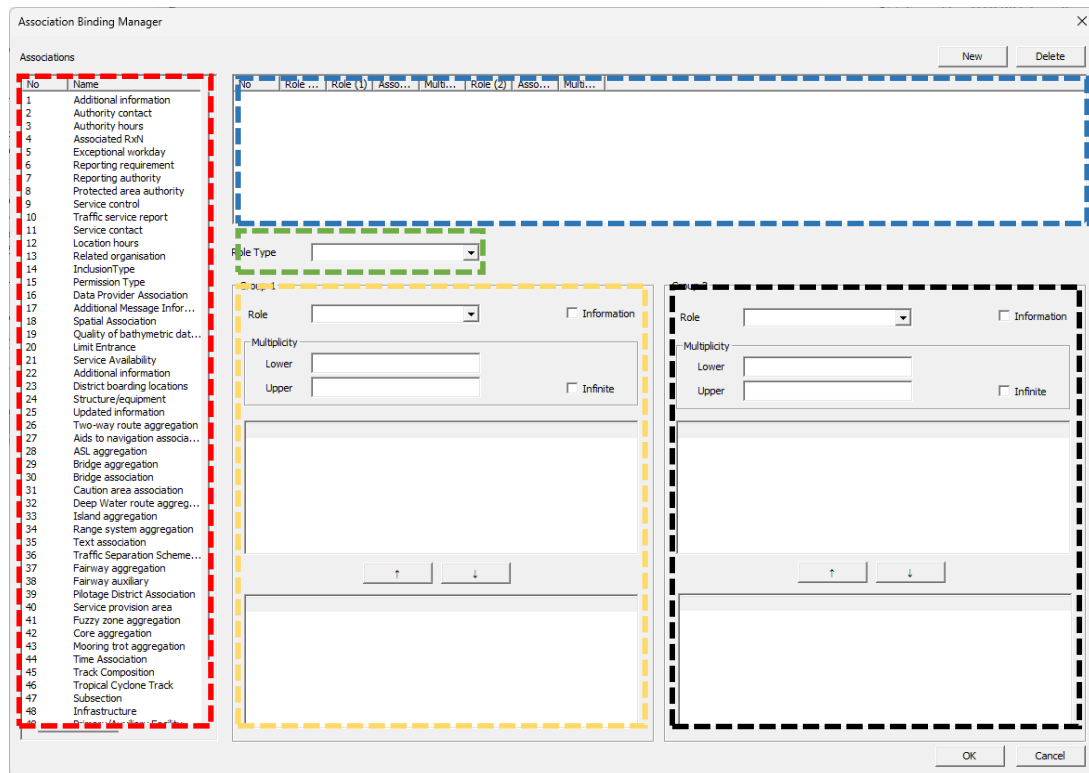
- Current status of Feature Catalogue Builder
  - Reflects the revised FC data model following S-100 Ed 5.0.0
  - Provides Association Binding Manager in the form of an association table in DCEG

### 25.15 Structure/equipment

**Structure/Equipment:** IHO Definition: A feature association for the binding between a navigation aid equipment feature and the structure that supports it.

Remarks:

- A **Structure/Equipment** composition binds a single “Supported by” feature to at least one “Supports” feature.



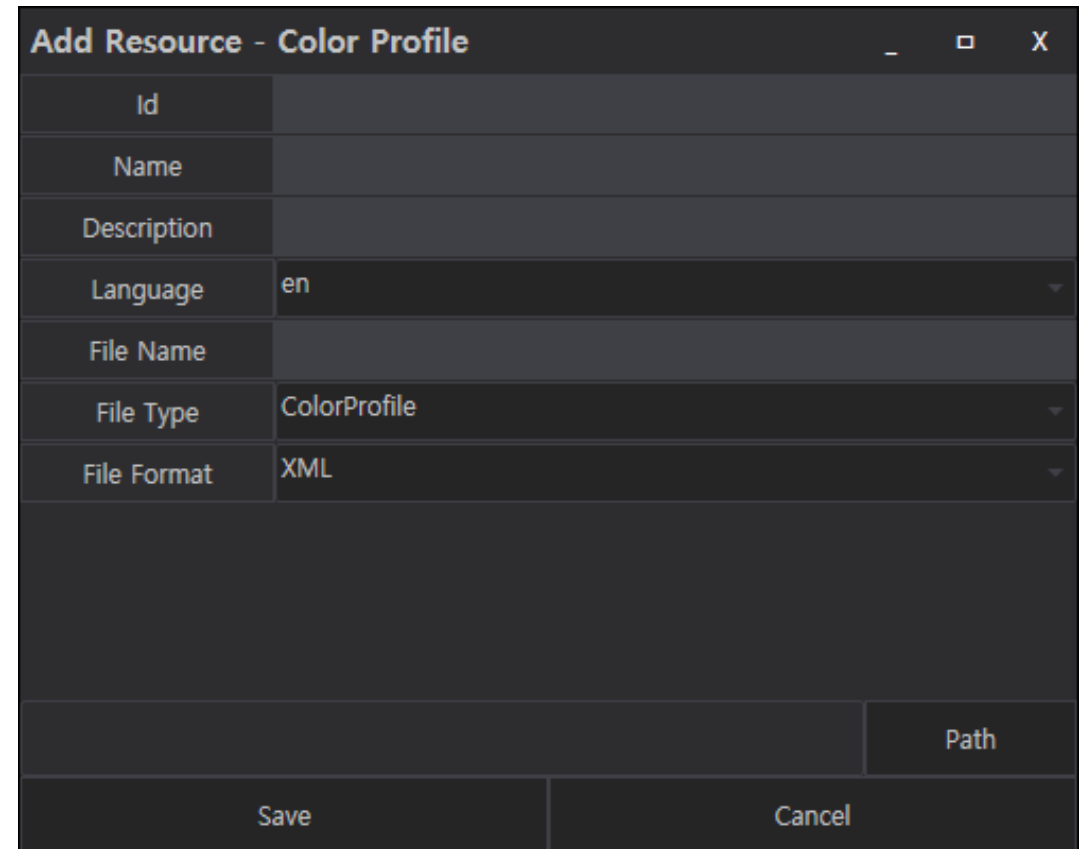
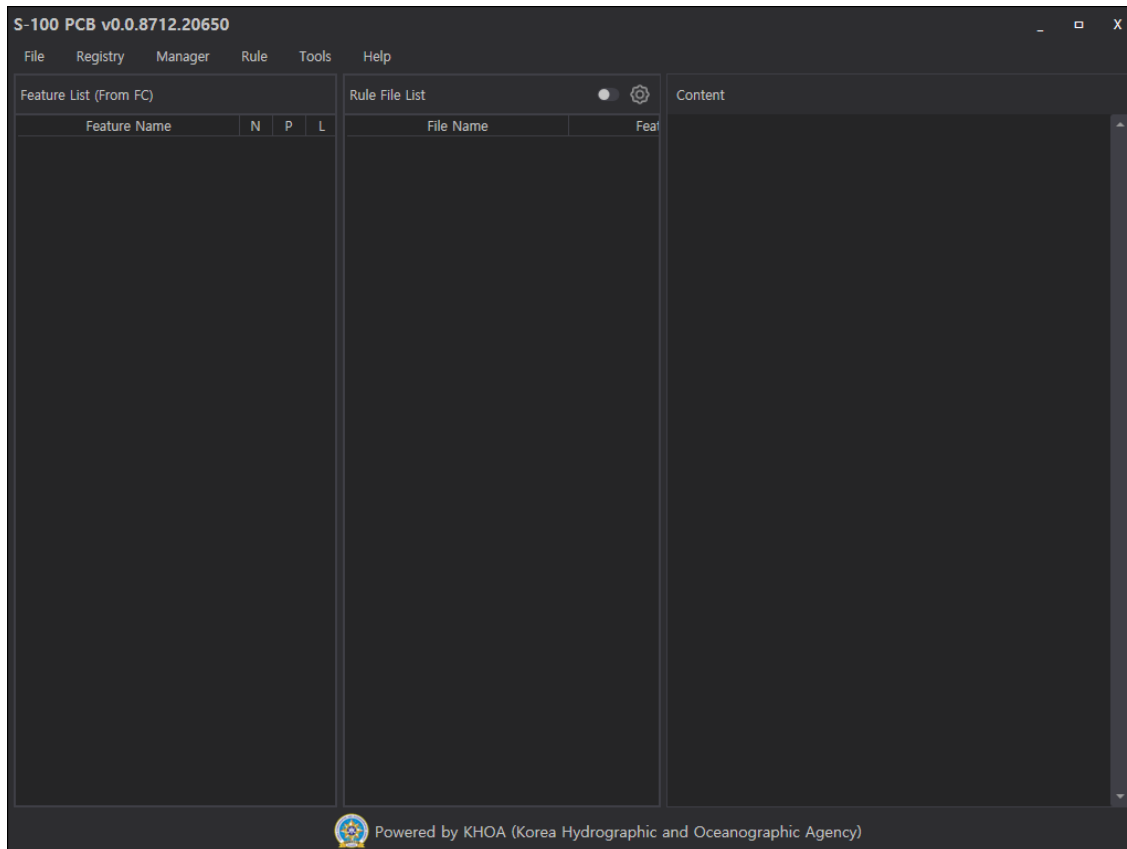
Role Type	Role	Associated With	Multiplicity
Composition	Supported by	Beacon Cardinal, Beacon Isolated Danger, Beacon Lateral, Beacon Safe Water, Beacon Special Purpose/General, Bridge, Building, Buoy Cardinal, Buoy Emergency Wreck Marking, Buoy Installation, Buoy Isolated Danger, Buoy Lateral, Buoy Safe Water, Buoy Special Purpose/General, Crane, Conveyor, Daymark, Fishing Facility, Floating Dock, Fortified Structure, Hulk, Landmark, Light Float, Light Vessel, Mooring/Warping Facility, Offshore Platform, Pile, Pipeline Overhead, Pontoon, Pylon/Bridge Support, Shoreline Construction, Silo/Tank, Span Fixed, Span Opening, Wind Turbine, Wreck	0,1
	Supports	Daymark, Distance Mark, Fog Signal, Light All Around, Light Fog Detector, Light Sector, Physical AIS Aid to Navigation, Radar Transponder Beacon, Retroreflector, Signal Station Traffic, Signal Station Warning	0,* {1,* [C]}
Role Type	Role	Associated With	Multiplicity
Composition	Supported by	Bridge, Building, Crane, Conveyor, Landmark, Offshore Platform, Pylon/Bridge Support, Span Fixed, Span Opening, Wind Turbine	0,1
	Supports	Light Air Obstruction	0,*
Role Type	Role	Associated With	Multiplicity
Composition	Supported by	Light All Around, Light Sector <sup>4</sup>	0,1
	Supports	Fog Signal, Light Air Obstruction, Light All Around, Light Fog	0,*



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### 3. PORTRAYAL CATALOGUE BUILDER

- Current status of Portrayal Catalogue Builder
  - Provides features to package, edit and validate PC
  - Supports Alert Catalogue editing based on S-100 Ed 5.0.0





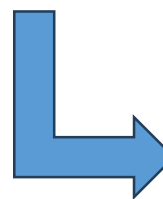
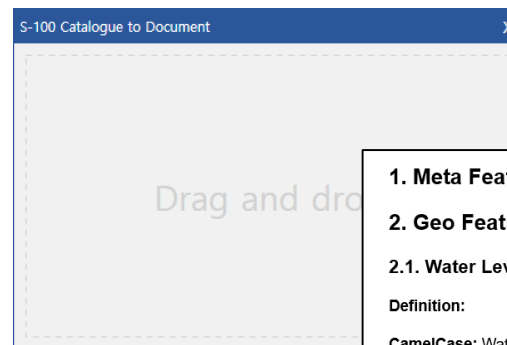
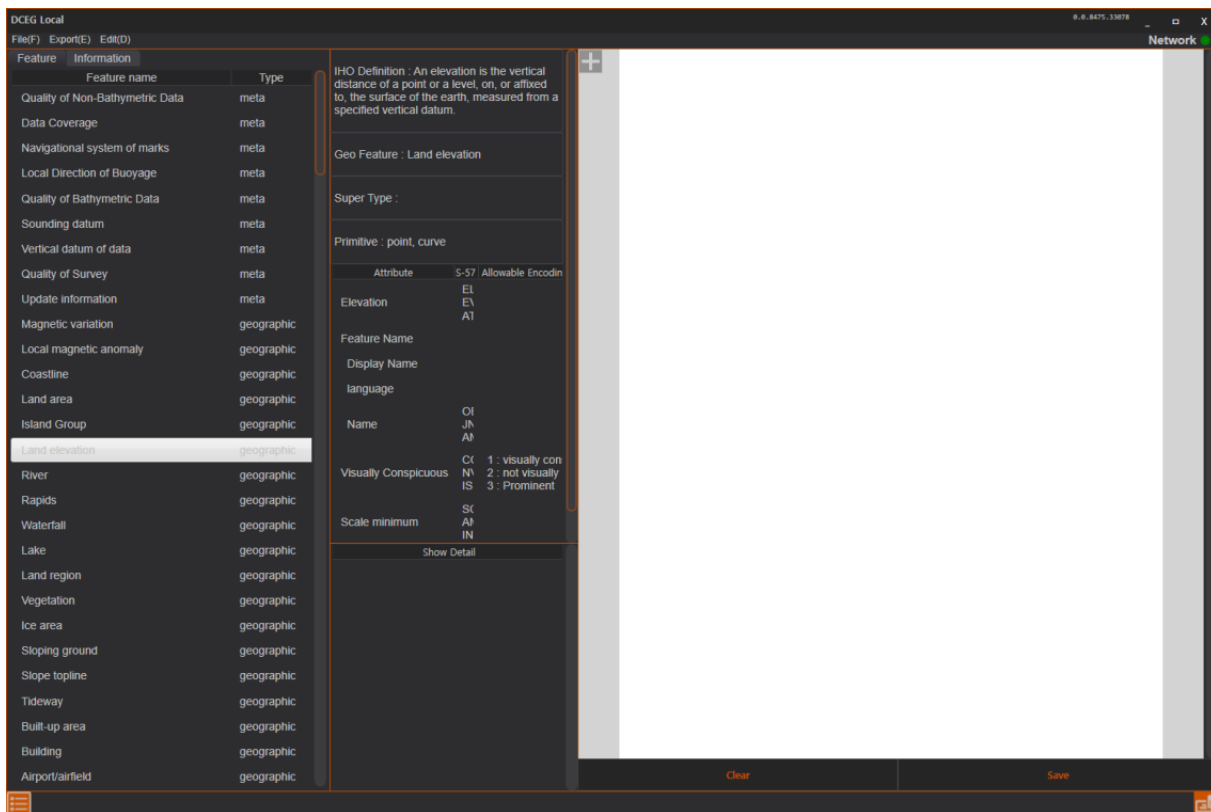


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# 4. DCEG COMPOSER

International Hydrographic Organization

- DCEG Composer updates following S-100 Ed 5.0
  - Reflects the revised FC data model following S-100 Ed 5.0.0
  - Provides a function to convert from Feature Catalogue (XML) to Document(doc) file (Machine readable → Human readable)



**1. Meta Feature Types**

**2. Geo Feature Types**

**2.1. Water Level**

**Definition:**

**CamelCase:** WaterLevel

**Alias:**

**Super type:**

**Feature use type:** geographic

**Primitive:** point

**Remarks:** No remarks.

**Attribute Bindings:**

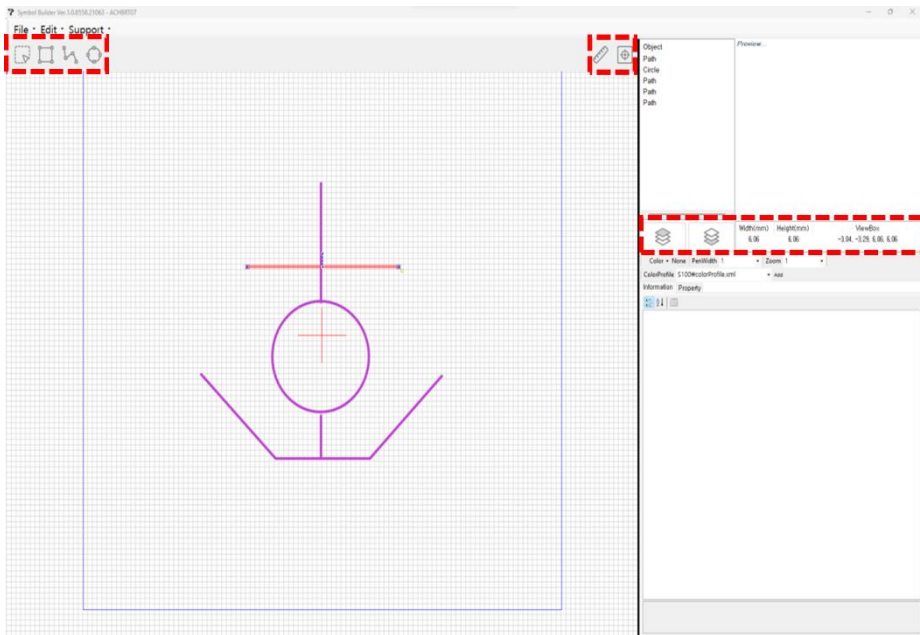
S-10x Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
Water Level Height			RE	1, 1
Water Level Uncertainty			RE	1, 1
Water Level Trend			RE	1, 1



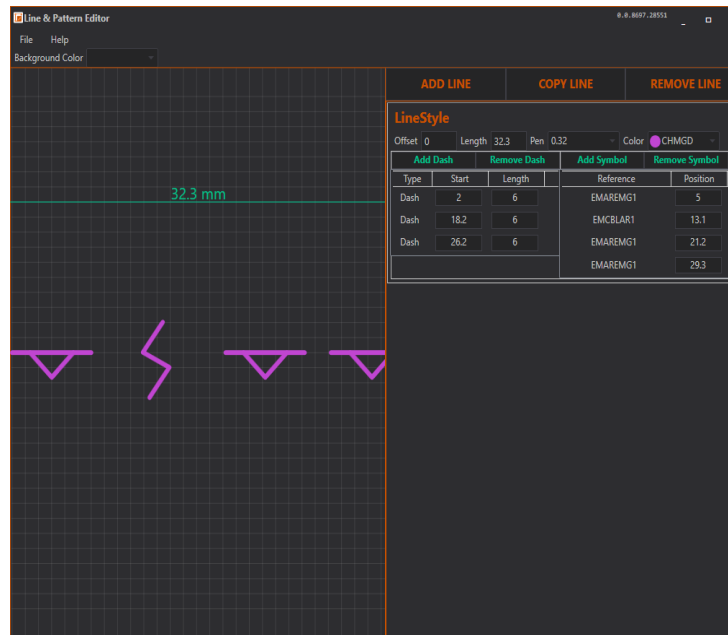
# 5. SYMBOL EDITOR (SYMBOL/LINE/PATTERN)

- Editing function of Line & Pattern has been updated
  - Applied SVG based on S-100 Ed 5.0.0
  - S-100 SVG metadata editing function
  - Editing and preview of Line Style and Pattern

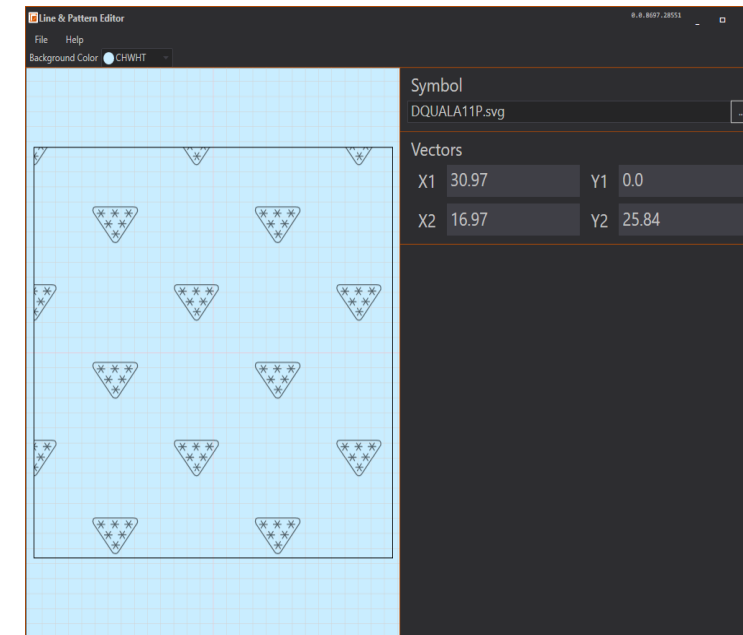
**SYMBOL**



**LINE**



**PATTERN**





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## 6. WORK PLAN FOR S-100 TOOLKIT

International  
Hydrographic  
Organization

S-100 Toolkit	Feature	Plan
Feature Catalogue Builder	Connect DB of GI Registry for Unit of Measurement, Quantity Specification, Constraints	Until the end of the year
Portrayal Catalogue Builder	Preview of edited portrayal catalogue through KHOA S-100 Viewer	Until the end of the year



- S100P WIKI
  - Users have been classified into 3 groups
  - Personal settings such as invitation, notification has been added
  - New bulletin board for national S-100 committees of ROK and AUS

Group	Sub-group	Possible Task
Admin Group		View / Like / Comment / Edit / Delete / Admin / Register
Edit Group	S-101PT	View / Like / Comment / Edit / Delete
	S-102PT	
	S-121PT	
	S-129PT	
	S-164 Sub-group	
	S-100 Validation Sub-group	
Basic Group		View / Like / Comment

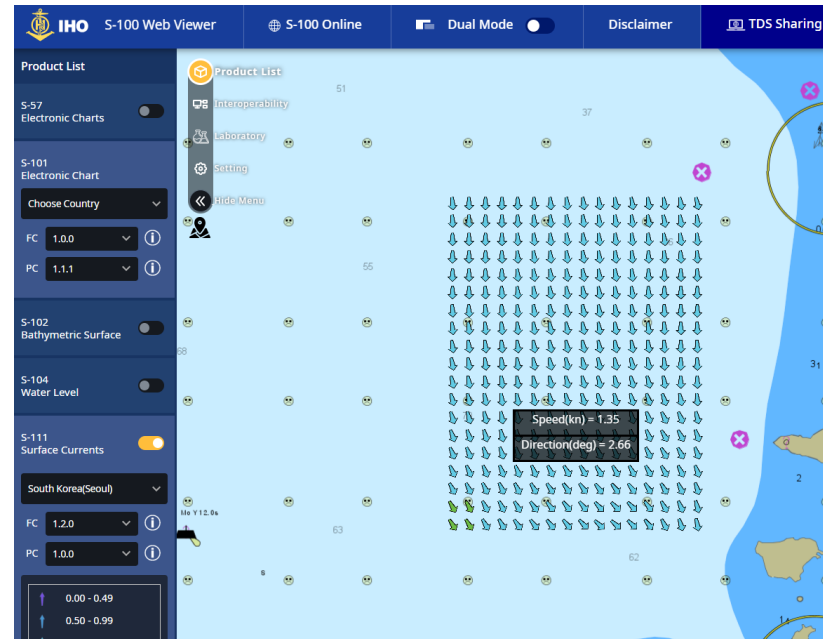
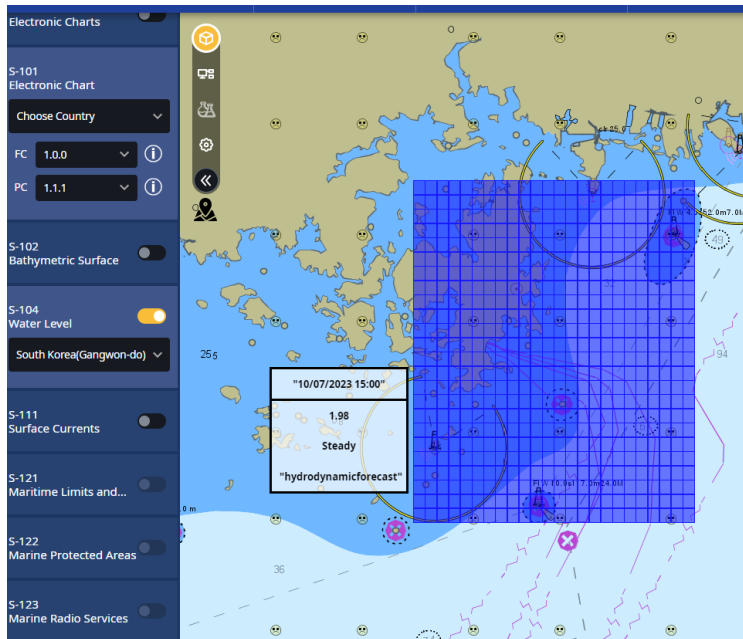


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## 7. S100P

- S100P Webviewer

- S-10X dataset Portrayal : S-101, S-102, **S-104, S-111, S-128**
- Supports S-104 data coding format : 1, 2, 3, 7, 8
- Supports S-111 data coding format : 2
- Users can search any of features in S-101/102/104/111/128 dataset





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## 8. CONCLUSION

International  
Hydrographic  
Organization

- Recommendations
  - The S-100WG members are invited to:
    - a. Use the S-100 infrastructures including S-100 GI registry and Tool kits
- Action Required of S-100WG
  - The S-100WG is invited to:
    - a. note the investigation and research results of the S-100 infrastructures
    - b. note the plan of KHOA to continue the updates of S-100 GI Registry and Tool kits following S-100 ed 5.1.0