



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

## **IALA Activities affecting HSSC**

### **Agenda Item 7.3A**

Minsu JEON, Technical manager IALA

HSSC-14, Denpasar, Bali, Indonesia - Hybrid Event, 16 – 19 May 2022



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# IALA'S ROLE ON S-200 DEVELOPMENT

International  
Hydrographic  
Organization

- IHO has approved IALA as a **Submitting Organization** and **Domain Controller**
- IALA Product Specifications compliant with the IHO S-100 standard, use the numbering series S-201 to S-299
- **IALA Domain covers:**
  - Aids to Navigation (AtoN)
  - Vessel Traffic Services (VTS)
  - Positioning Systems
  - Communication Systems
  - AIS, ASM, VDES
- **Publications**
  - IALA Rnnnn on S-200
  - IALA G1106 on the Development of Product Specifications
  - IALA G1087 on the Management of the IALA Domain
  - IALA Gnnnn on the implementation guideline

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# DEVELOPMENT STATUS OF S-200 SERIES

International  
Hydrographic  
Organization

S-200 development summary table

Domain	PS	Title	Developing Committee	Version
<b>AtoN</b>	S-201	AtoN information	ARM	1.1.0
	S-125	Maritime Navigational Service	NIPWG (ARM)	
<b>Positioning</b>	S-240	DGNSS almanac	ENG	1.0.0
	S-245	eLoran ASF	ENG	0.7.0
	S-246	eLoran almanac	ENG	1.0.0
	S-247	eLoran reference stations	ENG	1.0.0
<b>Comms.</b>	S-230	Application Specific Message (ASM)	ENAV	Planned
<b>VTS</b>	S-210	Inter VTS exchange	VTS	Started
	S-211	Port Call Message	IPCDMC	1.0.0
	S-212	VTS digital information service	VTS	0.6.4



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# IALA'S ROLE ON S-200 DEVELOPMENT

International Hydrographic Organization

<https://www.iala-aism.org/technical/data-modelling/iala-s-200-development-status/>



[IHO S-100 GI REGISTRY →](#)

[IALA S-200 PRODUCT SPECIFICATION AND DEVELOPMENT STATUS →](#)

[S-201 →](#)

[S-210 →](#)

[S-211 →](#)

[S-212 →](#)

[S-230 →](#)

[S-240 →](#)

[S-245 →](#)

[S-246 →](#)

[S-247 →](#)

IALA is establishing the S-200 domain, in consultation with IHO. This domain uses the range S-201 to S-299 for product specifications compliant with the IHO S-100 standard, covering fields within the IALA remit, including Aids to Navigation (AtoN), Vessel Traffic Services (VTS), positioning systems and communication systems.

IALA has worked closely with IHO and other bodies to develop S-200 product specifications within its areas of responsibility, in particular AtoNs and VTS. A supervisory structure (IALA Guideline 1087) has been established within IALA to manage its domain, which, with the approval of IHO, has been allocated the numbering series S-201 to S-299.

The IALA ARM Committee oversees this work. IALA Guideline 1106 sets out the process for preparing S-200 product specifications and has been revised and updated as experience has been gained. 2 product specifications (S-201 and S-240) are ready for review and approval and several others are under development.

PS No.	Title	Developer	Field Manager	Status	Edition

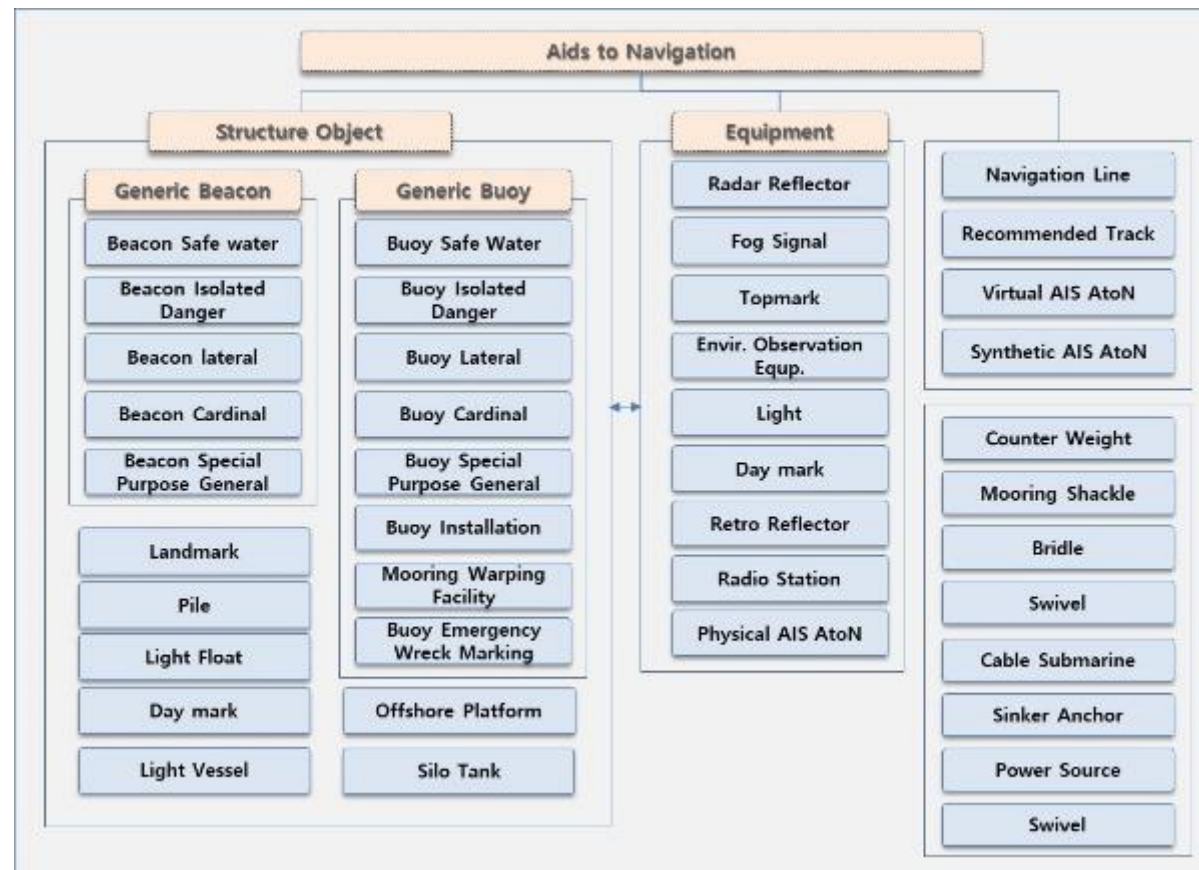
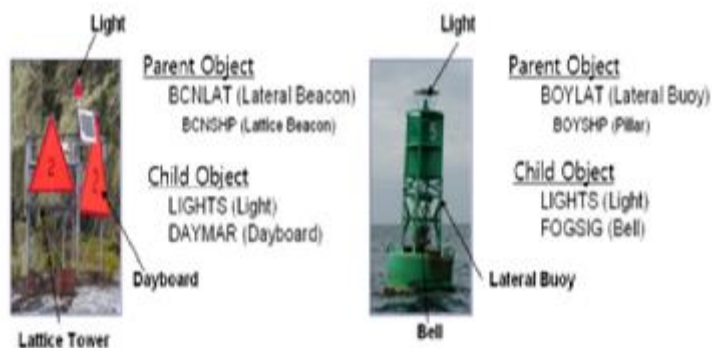


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# S-201 ATON INFORMATION

International Hydrographic Organization

- Standardised method of exchanging information on AtoN between lighthouse authorities, hydrographic offices, and related organisations.
- The product contains the positions, properties, operational status and general comments related to an AtoN








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# S-201 ATON INFORMATION

International Hydrographic Organization

- Testbed

### DATASET

Upload Create Dataset Save to S201 Delete

Search

ID	Name	Type	FC Ver	Info
1	Gunsan	S-201	0.9.9	✓
2	test	S-201	0.9.9	✓

### Gunsan

Create Feature Delete Feature

Search

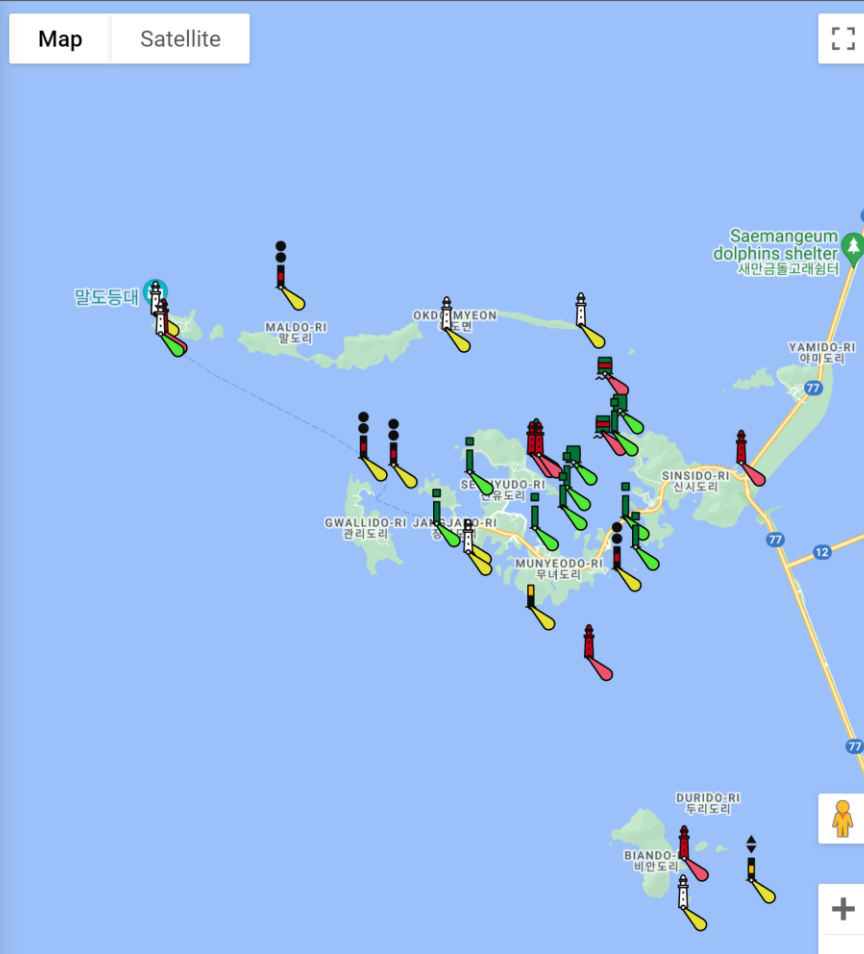
Name	Type	Info
Eocheongdo Hang	S201:Landmark	✓
Sodangdo	S201:BeaconsolatedDang er	✓
Solpunseo	S201:BeaconsolatedDang er	✓
Gunghang hang Breakwater S.	S201:Landmark	✓
Dongho Hang	S201:Landmark	✓
Bieungdo Hang	S201:Landmark	✓
Chidudo	S201:Landmark	✓

**Gunsan Hang**

Lat : 35-59-48.5N Lon : 126-30-56.9E

S201:Landmark	
Name	Value
AtoNNumber	urn:mrn:aton:GB:8262527:1
idCode	021C982625270001
scaleMinimum	17999
sourceDate	2017-03-10T00:00:00
pictorialRepresentation	KR00100092.jpg
IALA_aidAvailabilityCategory	Category 1

Map Satellite



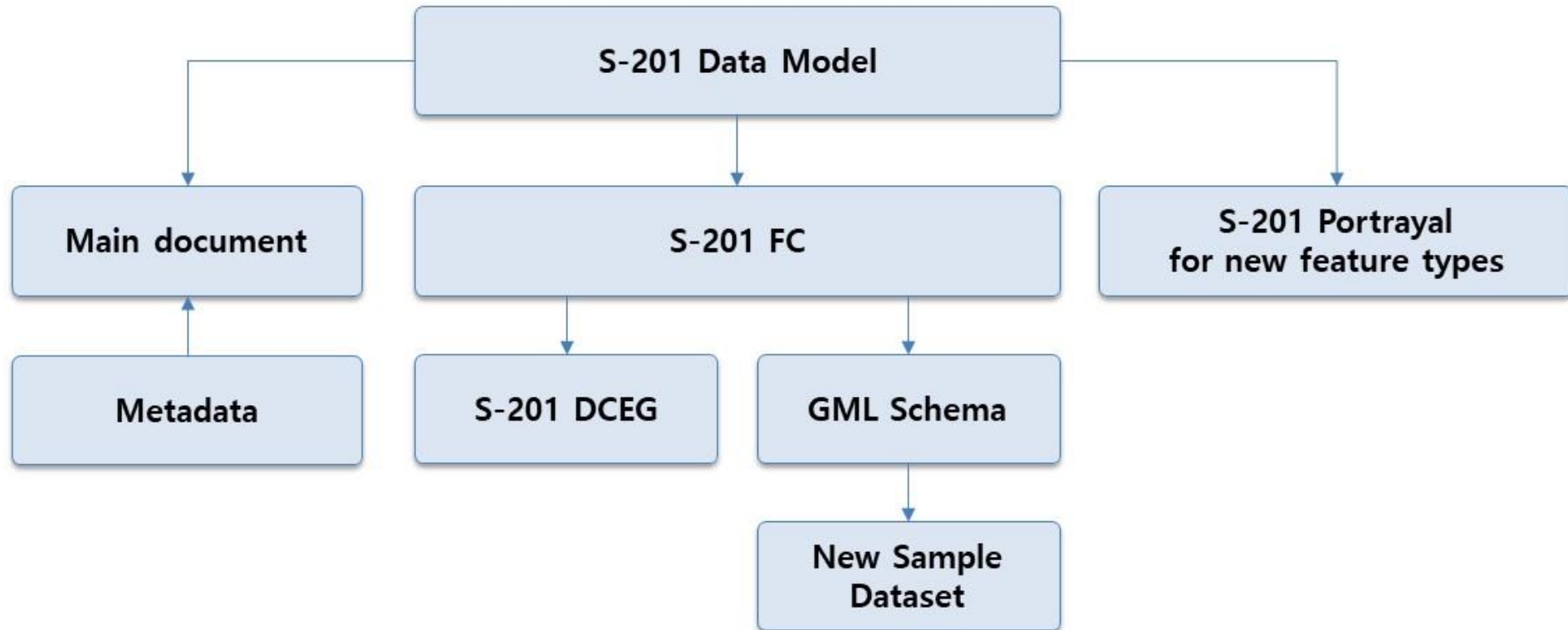


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# S-201 ATON INFORMATION

International  
Hydrographic  
Organization

- S-201 Data model





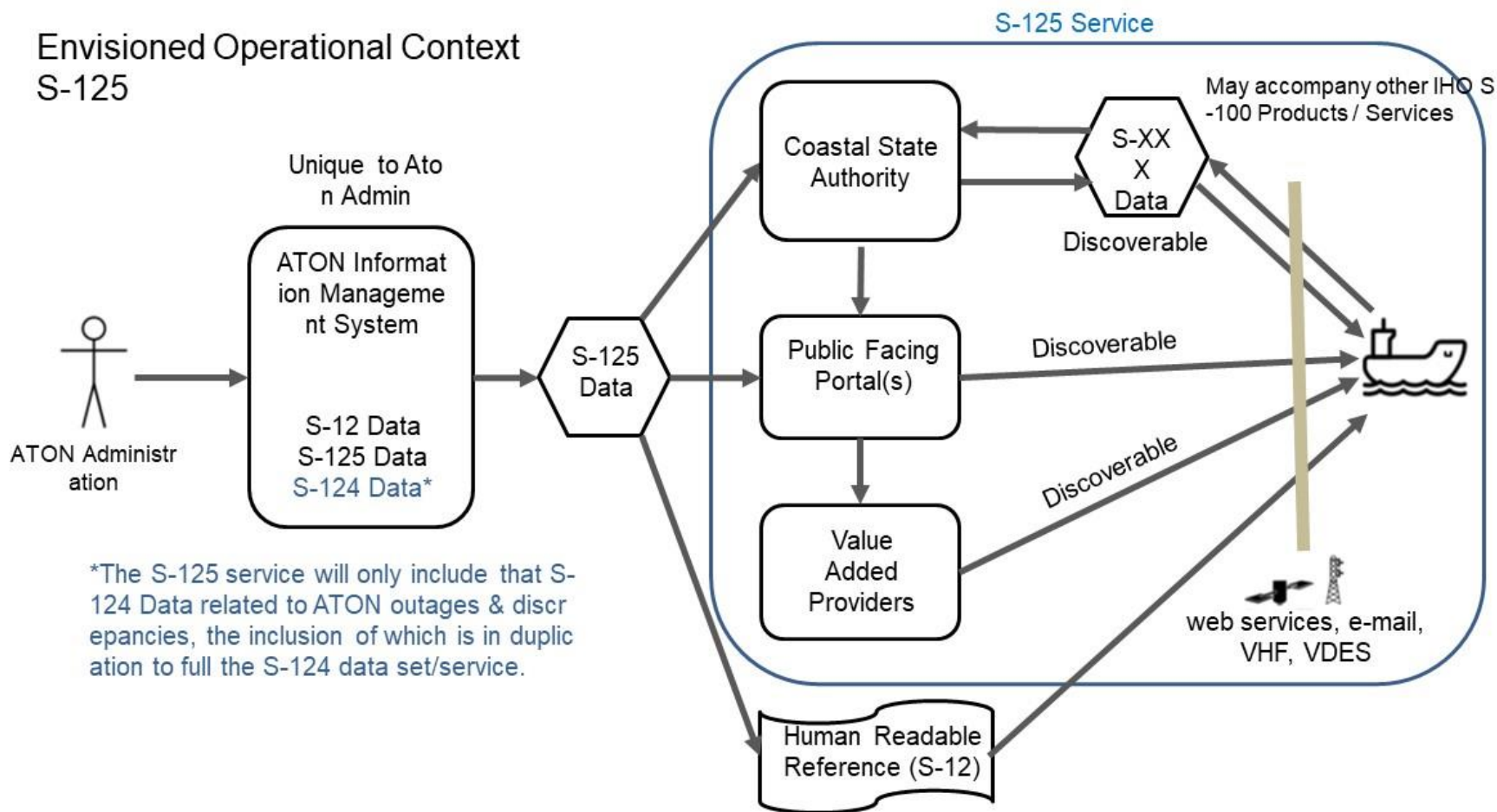
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# S-201 ATON INFORMATION

International Hydrographic Organization

- S-201 and S-125

Envisioned Operational Context  
S-125





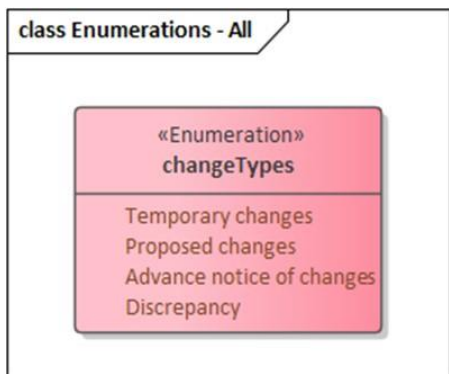


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# S-201 ATON INFORMATION

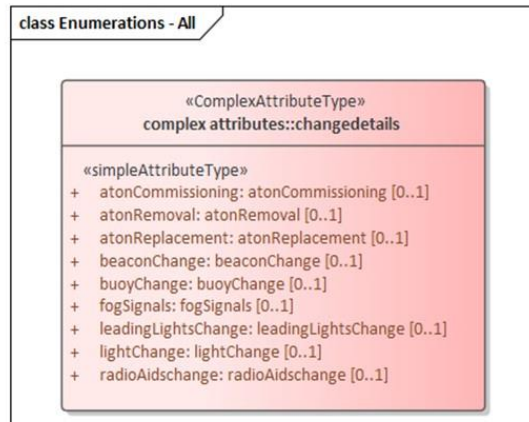
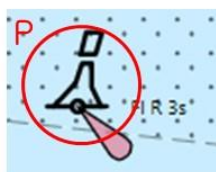
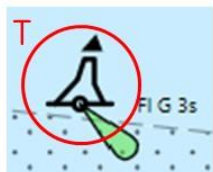
International Hydrographic Organization

## • Portrayal



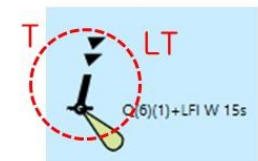
### Change Types

1. Temporary changes : T
  2. Proposed changes : P
  3. Advance notice of change : A
  4. Discrepancy : D
- (Option) Restored



### Change Details

4. Beacon Change (BE)
5. Buoy Change (BU)
6. Fog Signals (FS)
7. Leading Lights (LL)
8. Light change (LT)
9. Radio aids (RA)



- |    |    |    |
|----|----|----|
| BE | BU | FS |
| LL | LT | RA |

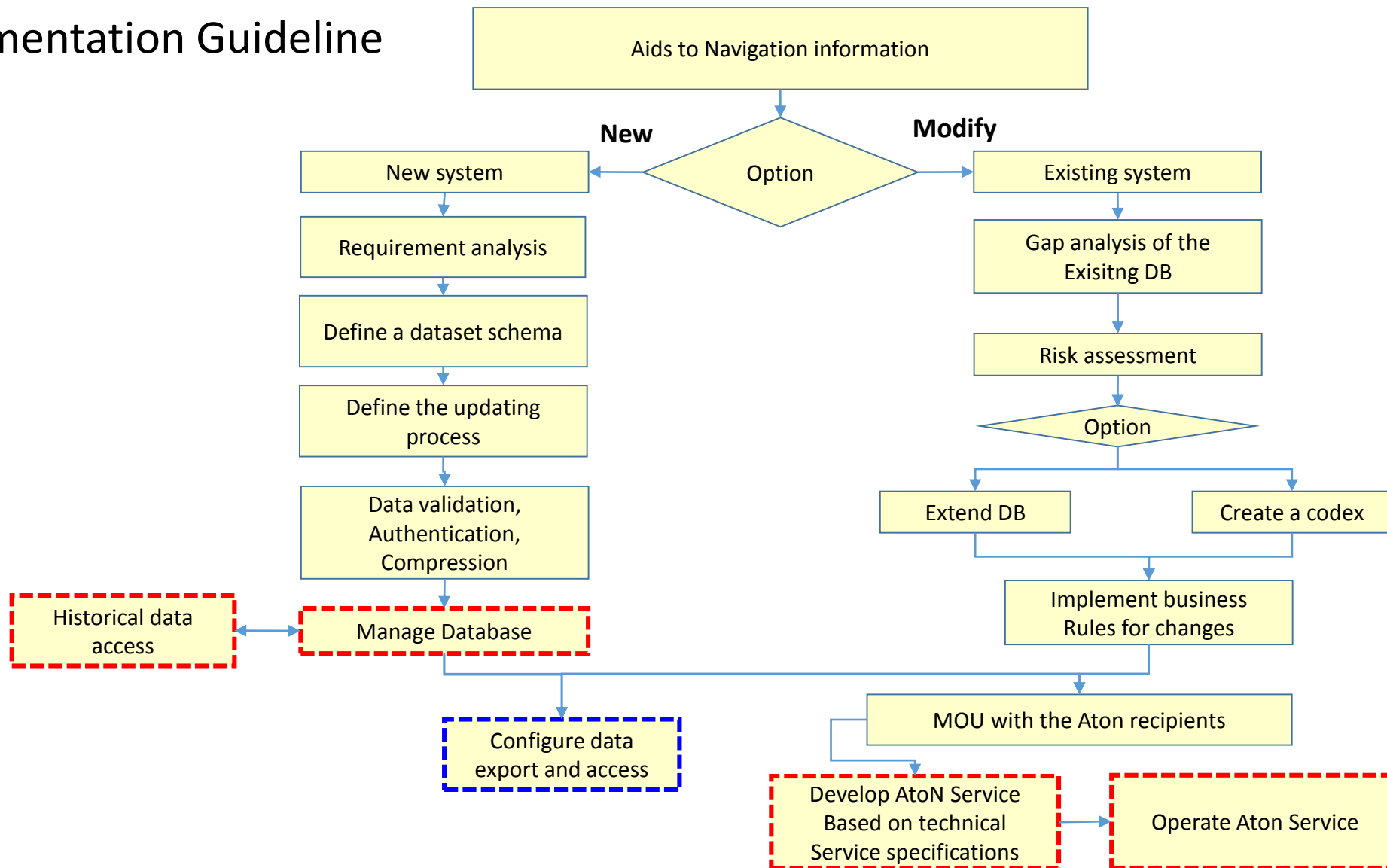


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# S-201 ATON INFORMATION

International Hydrographic Organization

## Implementation Guideline





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# S-212 VTS DIGITAL INFORMATION SERVICE

International Hydrographic Organization



- What** *What data is exchanged in VTS?*
- Who** *Who is data sender? Who is data receiver?*
- When** *When do vessels send this data?*
- Where** *Where do vessels send this data?*
- Why** *Why this data is sent?*
- How** *How do vessel and VTS exchange this data?*



In the scenario, ship and VTS location are represented by virtual picture.

No.	Scenario	Action	Direction
1	The Arrival Information	Provide arrival information	Center → Center
2	Vessel Entering VTS Area	Procedure for establishing communication and sending vessel identity and position. Requirement for data information exchange	Center → Center → Vessel
3	Vessels within VTS Area	State of readiness and situation collection. Requirement for information to participating vessels of major interests or on demand in defined categories by the VTS.	Center → Vessel
4	Moored/Maneuvering	Special concerns for vessels moored/Maneuvering in parking stage	Center → Vessel
5	Vessels at Anchor	Compliance with storage directions and any special requirements for a ship vessel being at anchor. Procedure for non-compliance for a vessel with the requirements and procedures laid down for the VTS area.	Center → Vessel
6	Vessels at Berth	Coordination of equipment in "backstop" and compliance with vessels not required to participate in the VTS anchorage program	Director → Center
7	Vessel Departing the VTS Area	Reporting requirement for vessels prior to leaving the anchorage	Vessel → Center
8	Vessel at Berth	Reporting requirements for vessels on arrival of berth	Vessel → Center
9	Vessel Departing the VTS Area	Need for instructions for other vessels leaving the VTS. Reporting requirement for a vessel prior to leaving the berth. Reporting requirement for vessels prior to departing the VTS	Vessel → Center
10	Transition between Adjacent VTS Area	Handover requirements with adjacent or next VTS	Center → Center
11	Transition between Adjacent VTS Area	Transfer of vessel information such as destination, cargo, destination and ETA destination	Center → Center
12	Adverse Environmental Conditions	Notification in preparation or occurrence conditions for adverse pilot vessels	Center → Vessel

VTS-INS draft Scenario

	Internal VTS Procedures	External VTS Procedures
1	Admission and Processing of Information	Provide arrival information
2	Operational Rules	Monitor Entering VTS Area
3	Deployment, Coverage, Manoeuvres, Collision and Lighting	Monitor within VTS Area
4	Information and Allied Services	Monitor by Port Pilot
5	Public Relations	Monitor at Anchor
6	Security	Monitor at Berth
7	Training	Vessels Departing the VTS Area
8	What is a vessel?	Transfer of Vessel Information VTS Area
9	Vessel Performance	Adverse Environmental Conditions
10	Validation of Vessel Publications	Collision, Grounding, Stranding, The CA Category, VTS Information
11	Special Traffic	Priority
12	Special Arrangements, Tugs and Trawls	Priority of Passage
13	Special Evaluation of VTS Area	Special Arrangements
14	Special Arrangements	Special Arrangements (SAC)
15	Security Indicators	Security Indicators
16		Pilotage, Aids
17		Radio Orders

## IALA V-127 Operational Procedure

Time	Vessel Action	VTS Action	Information category
01:00	Provides observational information	Seeking with information on vessel	Environmental
02:00	Enter VTS area, provides calling name	Transmits information to vessel	Traffic and Basic Information
03:00	Passes reporting point line	Provides information on current, wave height, etc.	Hydrographical Information
04:00	Requires port information	Provides queue details	Traffic and Basic Information
05:00	Passes second reporting point	Provides operational information to vessel	Navigation Records
06:00	Vessel along order	Sends information on vessel, wave height, etc.	Environmental

IALA MS Guideline



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# S-212 VTS DIGITAL INFORMATION SERVICE

International Hydrographic Organization

## 1. VTS user needs

**VTS46-13.3.9 - Annex A - VTS Digital Services**

TYPE	CATEGORY	FEATURE	ATTRIBUTE
Vessel Information	Identification	Vessel identity (IMO, name, MMSI, call sign, SAO, owner, ...)	
	VTSIS information	E.g. vessel measurements (length, width, draft, etc.), processing number of passengers, ... Type of vessel (category, sub-...)	
	Dynamic information	E.g. speed, direction, position of passengers, number of crew, flag, agent, captain, etc.	
Voyage Information	Certification information	Knowledge of TSSA	
	Identification	E.g. vessel name, IMO, MMSI, call sign, SAO, owner, ...	
	Routing plan	E.g. planned, confirmed, indicated, ...	
	Status	E.g. current, past, expected, ...	
	Alerts	E.g. current, past, expected, ...	
	Specific voyage information	E.g. trip number, voyage information, port information, cargo information, error severity (high, warning, ...)	
Settings	E.g. VTS		

3.1.2. When starting VTS INS, when a vessel enters the VTS area procedures for the following actions should be considered:

- Procedures for establishing communications and verifying vessel identity and position.
- Requirements for data information exchange, which may include:
  - Confirm reporting requirements.
  - Provide relevant data information.
  - Provide navigational / history information.
  - Multiple requirements with RFD requirements (what is used, definition, passage plan, operational details, permanent identification).
- PROCEDURE for updating information with other services.

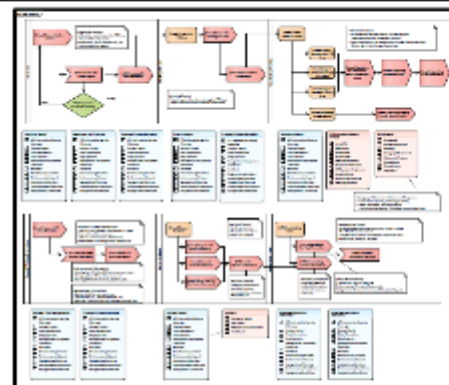
IALA V-127

Type	Need/Requirement	VTS feature	Information category
IC001	Provide operational information	Supply with information on available ...	Environmental
IC002	Users VTS area, provide traffic information to assist safety	Supply information to assist safety	Traffic and route information
IC003	Passes reporting plan (time)	Provide information on current, next, future, etc.	Hydrographical information
IC004	Requires user information	Provide user details	Traffic and Route information
IC005	Passes vessel reporting action	Provide operational information on board	Navigational/Status
IC006	Users along shore	Give information on vessel status, identity	

MS Guideline

Researching about product specification requirement(=need)  
- VTS46 result, MS Guideline, VTS Guideline, VTS operator's comment, SMCP

## 2. Define data exchange scenario



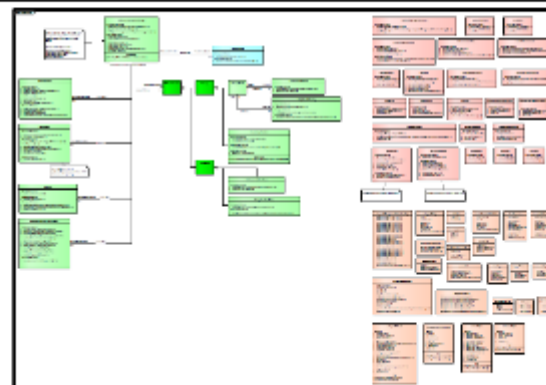
Define data exchange scenario based on requirements

## 3. Define Features & Attributes

Feature	Category	Requirement	Priority	Impact	Notes
Area of Interest	Operational	Users to being able to set area of interest (AOI) on the VTS display	H	Low	
AOI Data	Operational	Users to be able to set AOI on the VTS display	H	Low	
AOI Data	Operational	Users to be able to set AOI on the VTS display	H	Low	
AOI Data	Operational	Users to be able to set AOI on the VTS display	H	Low	

Analysis another standard(S-101, 124, 127, 211, 412, 421)  
New feature for VTS determined

## 4. Product specification



Finally, development VTS-INS Product Specification

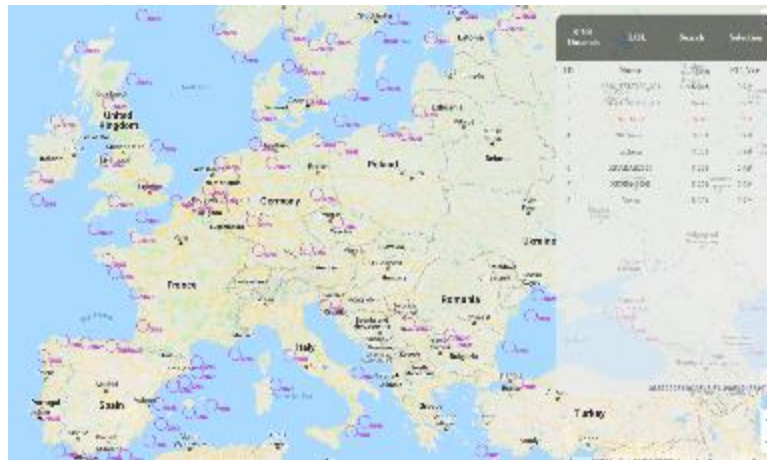


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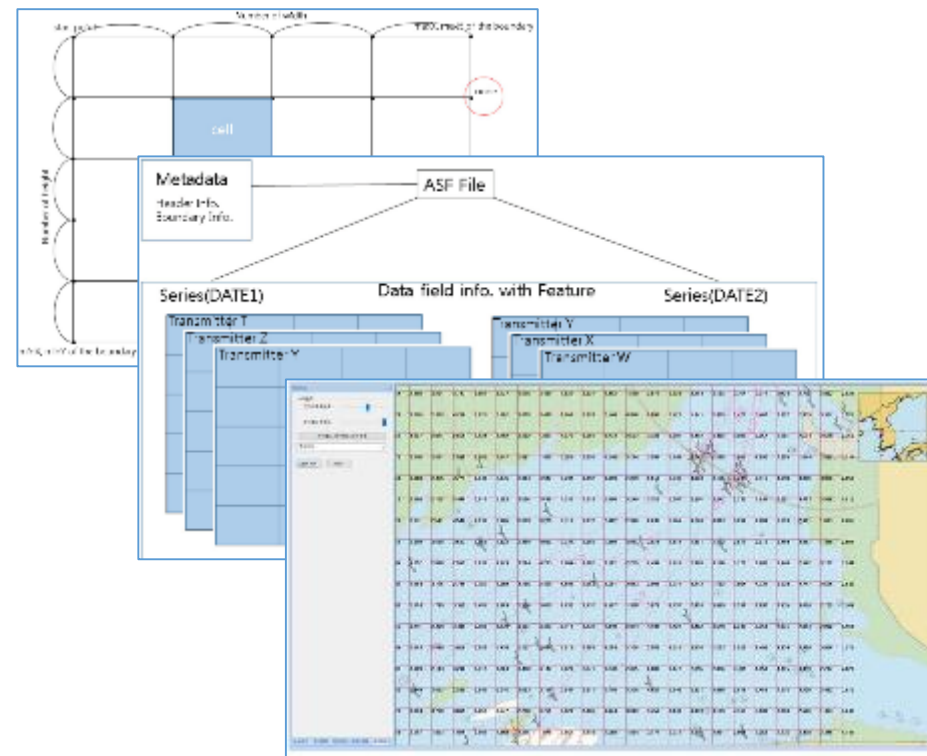
# S-240 PNT SERIES

International  
Hydrographic  
Organization

- Position Navigation Timing Product Specification
- S-240 DGNSS station almanac
- S-245, 246, 247 eLoran ASF data, almanac, reference station



S-240 viewer



S-245 Additional Secondary Factor (ASF) data



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# **JOINT IALA IHO WORKSHOP**

International  
Hydrographic  
Organization

05 - 09 September 2022

## Joint IALA/IHO workshop on S-100/200 development and portrayal Norwegian Coastal Administration, Ålesund, Norway



**KYSTVERKET**

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the International Hydrographic Organization (IHO) in association with the Norwegian Coastal Administration (NCA) are hosting a joint workshop on S-100/200 development and portrayal to be held in Ålesund, Norway, from 05 to 09 September 2022.



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# IALA STRATEGY

International  
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Organization

- IALA is developing and coordinating PS and data exchange formats that will underpin e-navigation services in the future.
- Focus on the technical service and streaming of the data.
- S-200 Product Specifications reaching maturity and their use needs to be tested and promoted.
- Promote the S-200 Testbed and invite members to participate.
- Continue the IALA/IHO technical cooperation meeting.
- Joint IALA/IHO Workshop is planned to be held on 5- 9 Sep 2022 in Ålesund, Norway.

**HSSC is invited to note the information provided.**