



S-200 UPDATES

2021 MACHC WEBINAR ON S-100

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IALA's role on S-200 development

- IALA is 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 G1106 on the Development of Product Specifications
 - IALA G1087 on the Management of the IALA Domain



S-200 Page on the website

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

IALA

NEWS & EVENTS MEETING DOCS GUIDANCE DOCUMENTS TECHNICAL TOWARDS AN IGO ABOUT IALA ACADEMY

CONTACT CAVE

TECHNICAL
DATA MODELLING

DATA MODELLING MRN (MARITIME RESOURCE NAME) CONNECTIVITY POSITIONING, NAVIGATION AND TIMING
RISK ANALYSIS AND MANAGEMENT MARITIME AUTONOMOUS SURFACE SHIPS (MASS) E-NAVIGATION TESTBEDS AND FAO
INFORMATION PORTRAYAL ATON SOFTWARE

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	Title	Developer	Field Manager	Status	Edition
S-201					
S-210					
S-211					
S-212					
S-230					
S-240					
S-245					
S-246					
S-247					



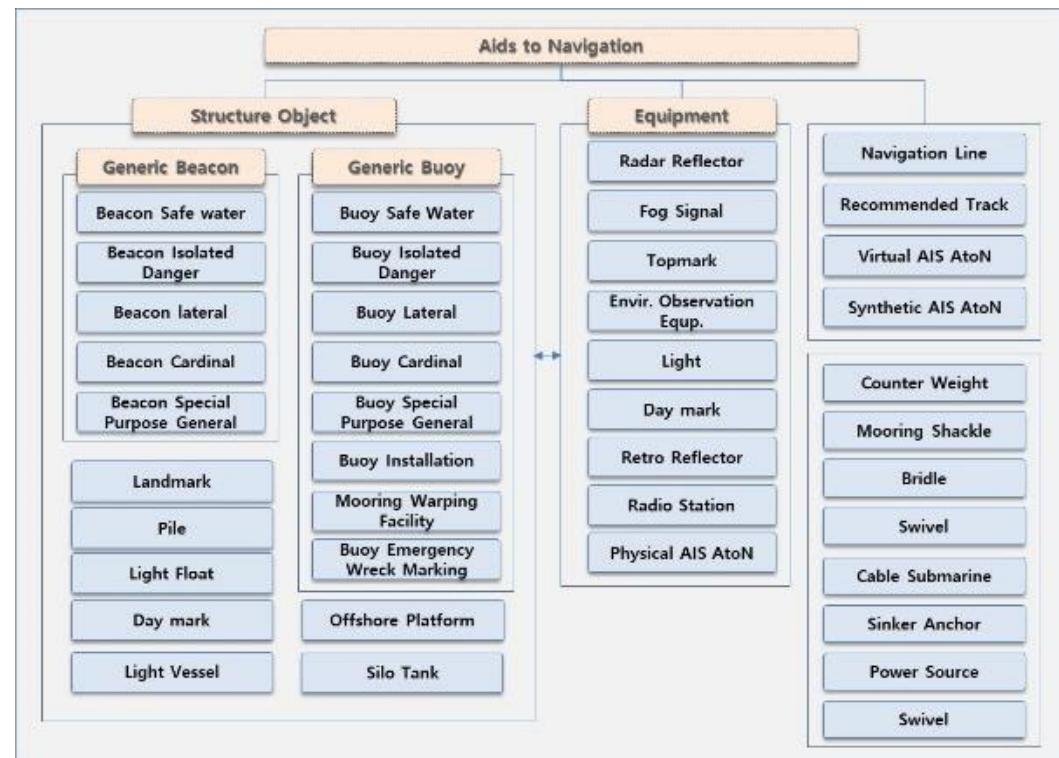
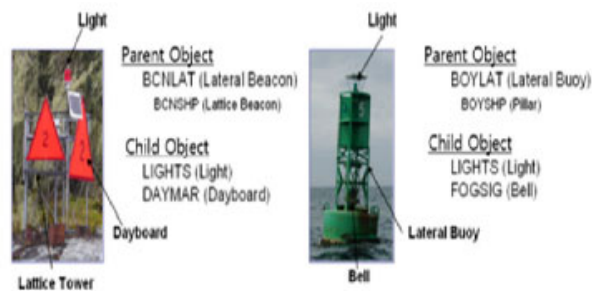
Development status of S-200 series

Subdomain	Product Spec. number	Title	Developer (owner)	Current version
AtoN	S-201	AtoN information	ARM	1.0.0
Positioning	S-240	DGNSS almanac	ENG	1.0.0
	S-245, S-246, S-247	eLoran ASF, almanac, reference stations	ENG	1.0.0
Communications	S-230	Application Specific Message (ASM)	ENAV	Planned
VTS	S-210	Inter VTS exchange	VTS	Started
	S-211	Port Call Message	IPCDMC ¹	1.0.0
	S-212	VTS digital information service	VTS	0.6.4



S-201 AtoN information

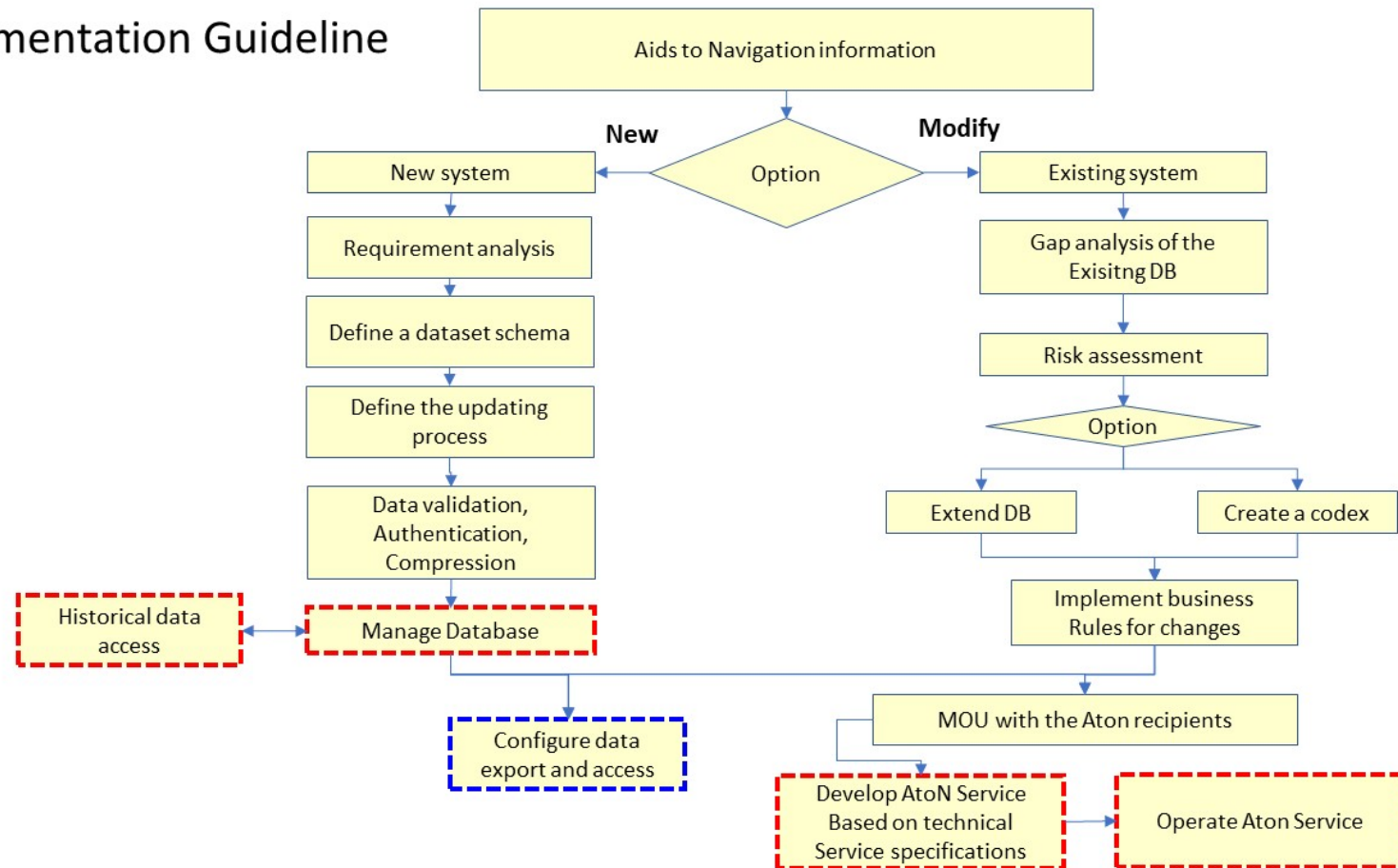
- Standardised method of exchanging information on AtoN between lighthouse authorities, hydrographic offices, and related organisations.
- The product contains the positions, properties, operational status and general comments related to an AtoN





S-201 AtoN information

Implementation Guideline





S-201 AtoN information_testbed

Light buoy

Create Feature

Name:

Type:

Structure Colour:

Buoy shape:

Installation Date:

Position:

Lat:

Lon:

Topmark: ☐

Light Characteristic:

Signal Group:

Signal Period:

Signal Sequence:

AtoN MRN:

Light beacon

Create Feature

Name:

Type:

Structure Colour:

Beacon shape:

Installation Date:

Position:

Lat:

Lon:

Topmark: ☐

Light Characteristic:

Signal Group:

Signal Period:

Signal Sequence:

AtoN MRN:

Beacon MRN:

Light house

Create Feature

Name:

Type:

Structure Colour:

Colour pattern:

Installation Date:

Position:

Lat:

Lon:

Category of landmark:

Visually conspicuous: ☐

Buoy

Create Feature

Name:

Type:

Structure Colour:

Installation Date:

Position:

Lat:

Lon:

Topmark: ☐

AtoN MRN:

Buoy MRN:

Create

Beacon

Create Feature

Name:

Type:

Structure Colour:

Installation Date:

Position:

Lat:

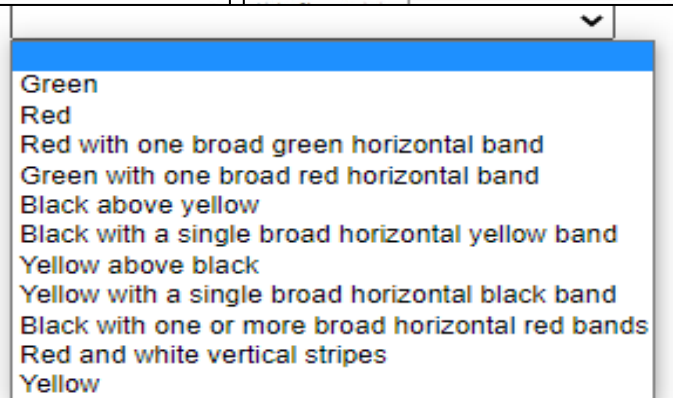
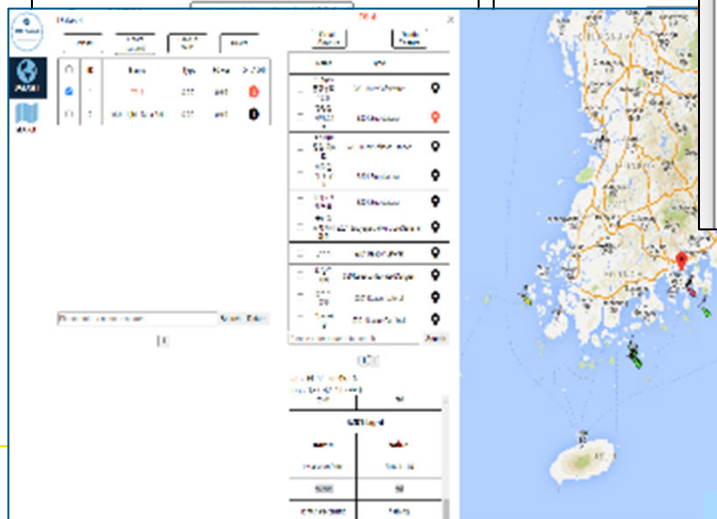
Lon:

Topmark: ☐

AtoN MRN:

Beacon MRN:

Create





S-212 VTS digital information service



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.

Stages	Action	Direction
1. Pre-Arrival	Provide ship information	Vessel → Center
2. Vessel Entering VTS Area	Procedures for establishing communications and exchanging vessel identity and position Requirements for inter information exchange	Vessel → Center Center → Vessel
3. Vessels within VTS Area	Grant of permission and voluntary participation Provision of relevant information to participating vessels of regular intervals or on demand or special necessary for the VTS Special provisions for vessels carrying hazardous dangerous or polluting cargo	Center → Vessel Center → Vessel
4. Monitoring Participation	Compliance with passage directions and any special requirements for a pilot vessel being off station Procedures for non-compliance by a vessel with the requirements and procedures laid down for the VTS area	Vessel → Center Center → Vessel
5. Voluntary Participation	Consideration of requirement to backanchor and communicate with vessels not required to participate in the VTS Anchorage assignment	Center → Vessel Center → Vessel
6. Vessels in Anchor	Reporting requirement for vessels prior to leaving the anchorage Reporting requirements for vessels on arrival of berth	Vessel → Center Center → Vessel
7. Vessels at Berth	Security requirements under tow Need for restrictions for other vessels passing the berth Reporting requirement for a vessel prior to leaving the berth	Vessel → Center Center → Vessel
8. Vessels Departing the VTS Area	Reporting requirement for vessels prior to departing the area Handover requirements with adjacent or next VTS	Vessel → Center Center → Vessel
9. Transition between Adjacent VTS area	Transfer of vessel information such as identification, cargo, destination and ETA destination	Center → Center
10. Advise Environmental Conditions	Restriction or prohibition on movement Restriction for service, pilot, towage	Center → Vessel

VTS-INS draft Scenario

Internal VTS Procedures	External VTS Procedures
- Advisory and Reporting of Information - Operational Rule - Equipment Operation, Maintenance, Calibration and Upgrading - Interaction with Allied Services - Public Relations - Security - Training - Vessel Database - Vessel Handbook - Validation of VTS Data Publication	- Relevant Information - Vessel Entering VTS Area - Vessel Within VTS Area - Vessel Leaving VTS Area - Vessel to Berth - Vessel Departing the VTS Area - Transfer between Adjacent VTS Area - Adverse Environmental Conditions - Collision, Grounding, Sinking, Grounding, Fire, Explosion, Oil Spill, etc. - Procedures - Procedures of Passage - Medical Emergency - Vessel Accidents, Collisions, etc. - Security Incident - Procedures, Action - Public Relations

IALA V-127 Operational Procedure

Time	Vessel Action	VTS Action	Information category
01:30+	Provides pre-arrival information	Receiving with information on vessel	Environmental
02:30+	Enters VTS area, provides calling name	Traffic information to vessel	Traffic and Base Information
03:30+	Passes reporting point line	Provides information on current, wave height, etc.	Hydrographical Information
04:30+	Requires port information	Provides port details	Traffic and Base Information
05:30+	Passes second reporting point	Provides operational information available	Navigation Records
06:30+	Vessel along side	Give information on wind, speed, visibility	Environmental

IALA MS Guideline



S-212 VTS digital information service

1. VTS user needs

VTS46-13.3.9 - Annex A - VTS Digital Services			
TYPE	CATEGORY	FEATURE	ATTRIBUTE
Vessel Information	Identification	Vessel identity (name, MMSI, call sign, IMO, owner, ...)	
	Static Information	Vessel dimensions (length, width, draft, height, ...), vessel number of passengers, ... (type of vessel, container, ...)	
	Dynamic Information	Vessel speed, direction, position of passengers, number of crew, flag, agent, captain, ...	
Voyage Information	Certification Information	Navigation ID, ...	
	Routing Data	Vessel route, arrival, departure, ...	
	Status	Vessel status, confirmed, estimated, ...	
	Position	Vessel position, last reported, last received, ...	
	Specific voyage information	Vessel specific voyage information, port information, ...	
	Warnings	Vessel warnings, ...	

3.1.2. CHANGING VTS AREA
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 initial information exchange, which may include:
 - Confirm reporting requirements.
 - Provide relevant data of the vessel.
 - Provide navigational / safety information.
- Establish compliance with IMO requirements (charts and publications, passage plan, mechanical details, personnel identity).
- Procedures for updating information with other services.

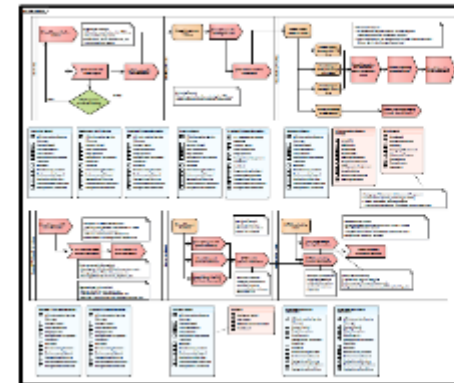
IALA V-127

Item	Requirement	VTS Action	Information category
0000	Initial vessel information	Supplying information on vessel	Identification
0001	Initial VTS area, position	Initial information to vessel	Traffic and route information
0002	Position reporting point	Position information on current, route, height, etc.	Hydrographical information
0003	Navigation ID	Position, speed, direction	Traffic and route information
0004	Position, speed, direction	Position, speed, direction	Navigation information
0005	Position, speed, direction	Position, speed, direction	Navigation information

MS Guideline

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

2. Define data exchange scenario



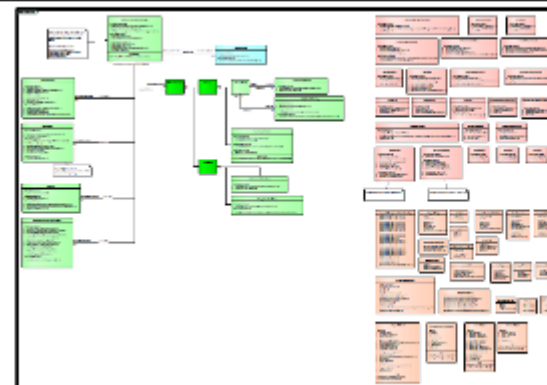
Define data exchange scenario based on requirements

3. Define Features & Attributes

Feature	Category	Attribute	Requirement	Item	Item	Item
Vessel Identity	Identification	Vessel identity (name, MMSI, call sign, IMO, owner, ...)	Initial information exchange	0000	0000	0000
Vessel Dimensions	Static Information	Vessel dimensions (length, width, draft, height, ...), vessel number of passengers, ... (type of vessel, container, ...)	Initial information exchange	0001	0001	0001
Vessel Position	Dynamic Information	Vessel position, last reported, last received, ...	Position reporting	0002	0002	0002

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

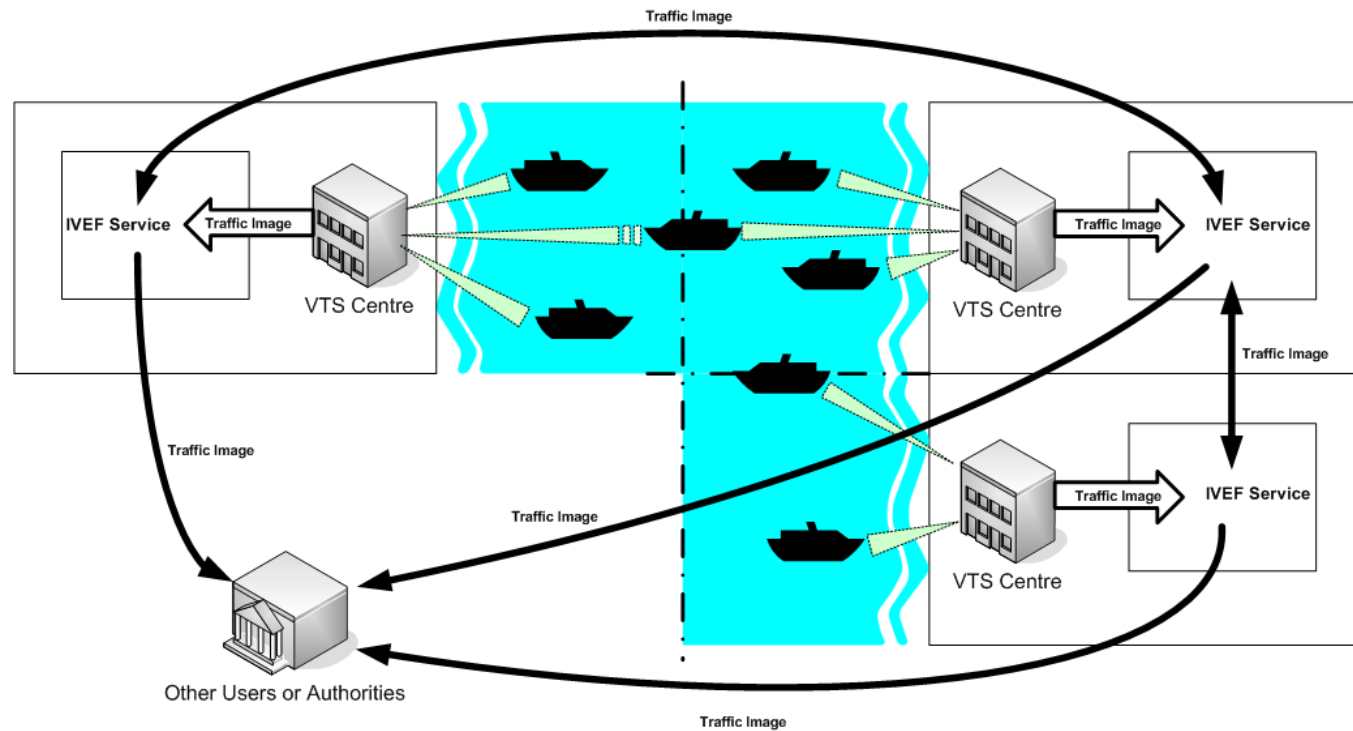
4. Product specification



Finally, development VTS-INS Product Specification



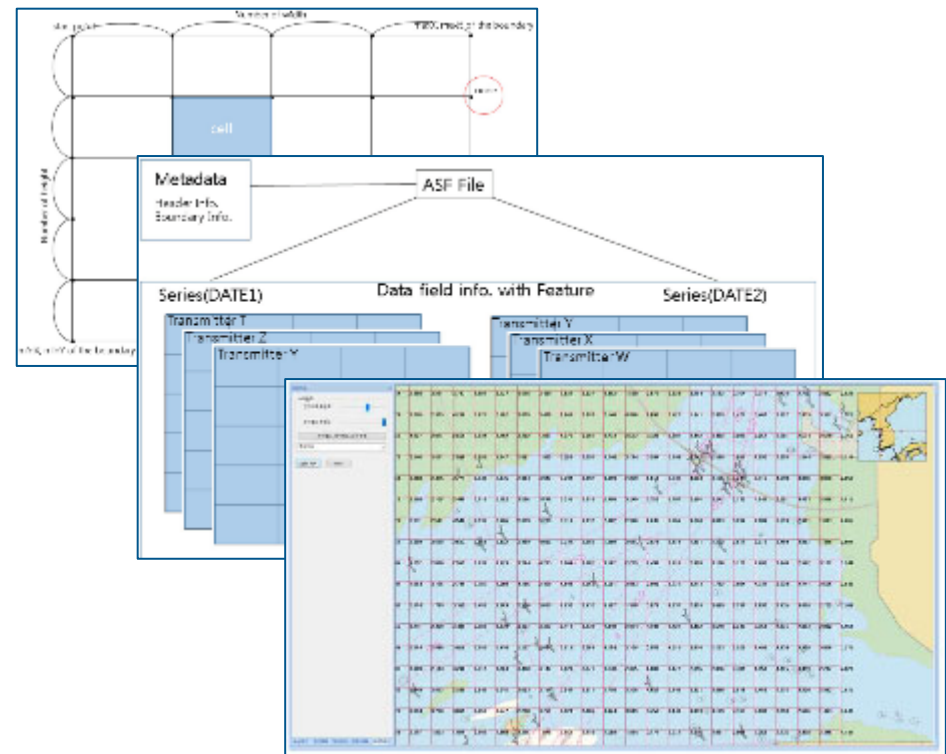
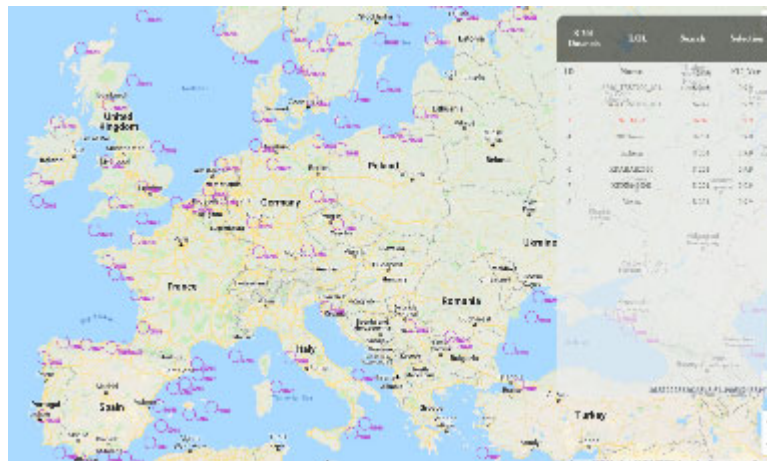
S-210 Inter VTS exchange





S-240 PNT series

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



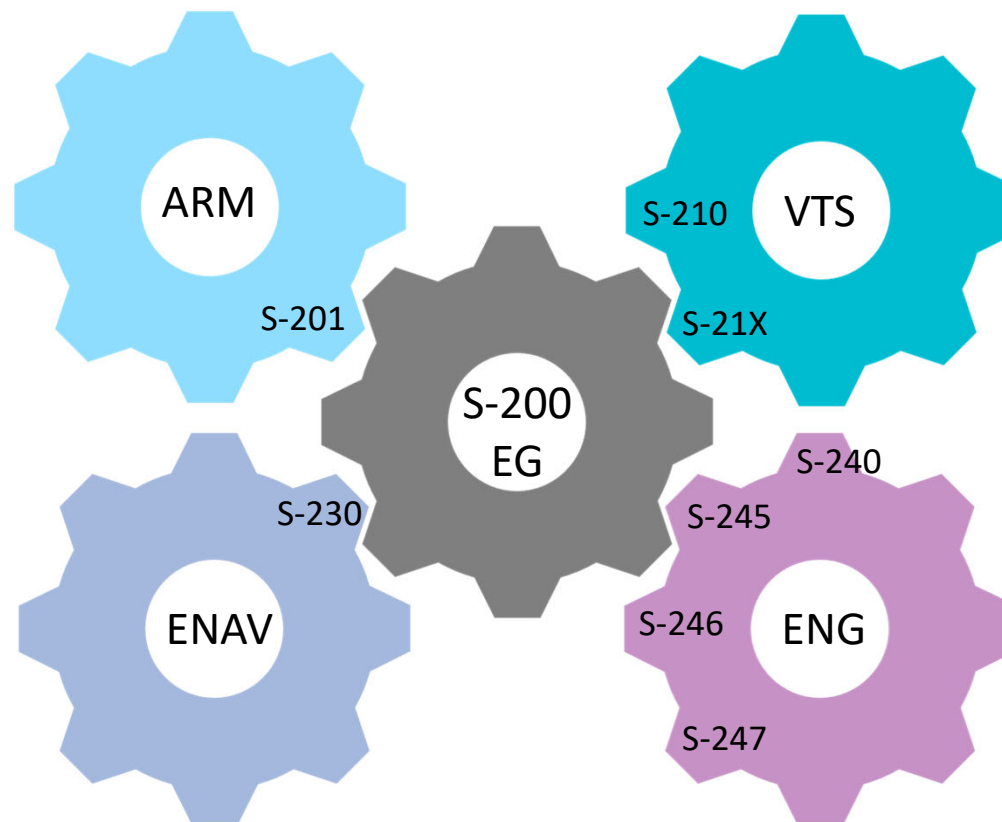


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Experts Group on S-200





IALA Strategy on S-200

- IALA keeps 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.
- Harmonise the terms and definitions of AtoN with IHO
- 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 in Norway in 2022.



QUESTIONS ?

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