



IALA GUIDELINE

1072

AtoN INFORMATION EXCHANGE & PRESENTATION

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DOCUMENT REVISION

Revisions to this IALA Document are to be noted in the table prior to the issue of a revised document.

| Date | Page / Section Revised | Requirement for Revision |
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1. INTRODUCTION

The first of the high-level generic user needs for e-Navigation identified at IMO NAV 54 was a Common Maritime Information/Data Structure: Mariners require information pertaining to the planning and execution of voyages, the assessment of navigation risk and compliance with regulation. This information should be accessible from a single integrated system. Shore users require information pertaining to their maritime domain, including static and dynamic information on vessels and their voyages. This information should be provided in an internationally agreed common data structure. Such a data structure is essential for the sharing of information amongst shore authorities on a regional and international basis.

Data on Aids to Navigation (AtoN) will be required as an integral component of the 'information' being referred to above.

2. OBJECTIVE

To provide IALA Members with guidance on the standards for the exchange and presentation of AtoN Information.

3. SCOPE

This guideline will set out the relevant standards and proposals on how to implement new applications in accordance with the standards.

4. RELEVANT STANDARDS

- 1 IHO Special publication No.57 (S57).
- 2 IHO Special publication No.100 (S100).
- 3 IMO Resolution MSC. 191(79), Performance Standards for the presentation of navigation-related information on shipborne navigational displays.
- 4 IMO SN/Circ. 243 Guidelines for the presentation of navigation-related symbols, terms and abbreviations.
- 5 ISO 8879:1986, Standard Generalized Markup Language (SGML) is an ISO defined metalanguage used to define markup languages.
- 6 ISO 19115:2003, Geographic Information – Metadata, defines the schema for the identification, extent, quality, spatial and temporal schema, spatial reference, and distribution of digital geographic data. These schemas are useful for the cataloguing of datasets, clearinghouse activities, and the full description of datasets; geographic datasets, dataset series, and individual geographic features and feature properties.
- 7 ISO 19119:2005, OpenGIS Service Architecture, defines a service metadata schema for use in a catalogue service as is done for dataset metadata.
- 8 ISO 11179-1 to 7:2004/5, Information Technology – Metadata Registries (MDR).
- 9 Future IALA Recommendation e-NAV 220, Universal Maritime Data Model.

5. IMPLEMENTATION

The following guidelines should be followed for AtoN attributes and metadata when implementing applications for AtoN Information collection, exchange and presentation:

- 1 Data representation and exchange of information should conform with IHO Special Publication S-57 in the short term (2010-2015).



- 2 The symbology should be in accordance with IMO SN Circ. 243.
- 3 In the medium to long term (2015-) data formats should align with S-100 and IALA should establish a data registry for AtoN information through the IHB.
- 4 Applications should follow the OpenGIS® Architecture for storing and accessing feature data in relational or object-relational databases (ISO 19119:2005).
- 5 Datasets should be described using the spatial and temporal schemas defined in ISO 19115:2003, Geographic Information – Metadata.
- 6 A markup language defined by SGML should be employed for the exchange of data between administrations, suppliers and users. Attributes should be used to define datatypes in the schemas (ISO 8879:1986).

6. ACRONYMS

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| AtoN | Aid(s) to Navigation |
| GIS | Geographic Information System |
| IALA | International Association of Marine Aids to Navigation and Lighthouse Authorities |
| IHO | International Hydrographic Organization |
| IMO | International Maritime Organization |
| ISO | International Organization for Standardisation |
| MDR | Metadata Registries |
| MSC | Maritime Safety Committee (IMO) |
| SGML | Standard Generalized Markup Language |
| SN/Circ. | Safety of Navigation Circular (IMO) |
| S-57 | IHO Transfer Standard for Digital Hydrographic Data |
| S-100 | Geospatial Information Registry (IHO) |

7. REFERENCES

- [1] IMO Resolution MSC. 191(79), Performance Standards for the presentation of navigation-related information on shipborne navigational displays.
- [2] IMO SN/Circ. 243 Guidelines for the presentation of navigation-related symbols, terms and abbreviations.
- [3] IHO Special publication No.57 (S57).
- [4] IHO Special publication No.100 (S100).
- [5] ISO 8879:1986, Standard Generalized Markup Language.
- [6] ISO 19115:2003, Geographic Information – Metadata.
- [7] ISO 19119:2005, OpenGIS® Service Architecture.
- [8] ISO 11179-1 to 7:2004/5, Information Technology – Metadata Registries (MDR).
- [9] ISO 19107 Geographic information – Spatial schema.
- [10] ISO 19111 Geographic information – Spatial referencing by coordinates.
- [11] ISO 19133 Geographic information – Location based services – Tracking and navigation.
- [12] Future IALA Recommendation e-NAV 0220, Universal Maritime Data Model.