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| From: ENAV Committee | PAP39-5.1.1 (ENAV24-12.3.8) |
| To: PAP | 10 October 2019 |

LIAISON NOTE

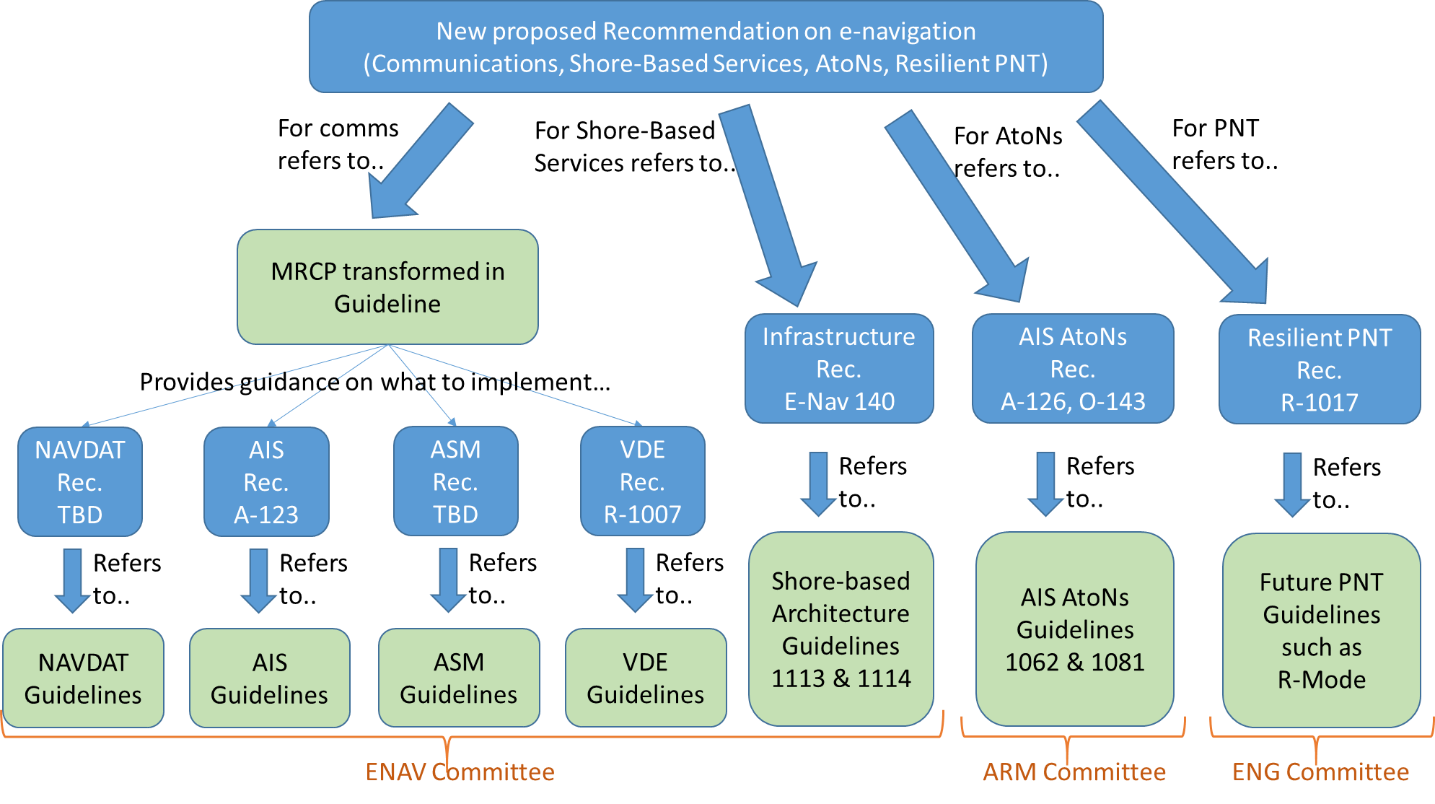
Proposed e-navigation documentation architecture & update

# Introduction

During the review of the available IALA documentation related to e-navigation the ENAV committee recognizes the output of the EfficienSea2 project (Deliverable D1.12). The ENAV committee identified a number of updates required to existing IALA documents to reflect the most recent e-navigation developments such as VDES. The committee also acknowledged that the overall architecture of the e-navigation documents available at IALA could be difficult to navigate for IALA members who have not directly participated in the production of those documents.

# Proposed e-navigation documentation architecture and update

The ENAV committee has developed a proposed e-navigation document architecture to help members navigate the available documentation. This documentation architecture proposes, amongst other changes, a new general IALA recommendation on e-navigation that would identify the different aspects of e-navigation and reference appropriate documents discussing these aspects to provide guidance to IALA members. See Figure 1 below.



**Figure 1: Proposed e-navigation document architecture**

In addition to the proposed architecture above, the ENAV committee has also performed a preliminary inventory and produced a list of changes that are required to IALA documentation. This list is available in Annex 1.

Finally, the ENAV committee has also identified a few changes in document ownership between IALA committees as a result of the recent changes in responsibilities proposed for this IALA 4-years work program. The proposed changes in ownership are available in Annex 2.

# Action requested

The PAP is requested to:

1. Review the proposed e-navigation document architecture and provide comments, corrections or amendments such as additional documents related to e-navigation that should be integrated in the proposed documentation architecture to ENAV25, if possible.
2. Review the list of documents and proposed updates available in Annex1. If possible, include the update of the documents to the committee work program.
3. Review the list of proposed documents ownership changes between committees and provide agreement, comments, corrections or amendments to ENAV25.

**Annex 1: List of documents and proposed updates**

General comments:

• This list is preliminary and focused specifically on modifications and updates required that relate to the proposed documentation architecture as well as recent developments in AIS and VDES. Committees are welcomed to go above and beyond the proposed revisions below. In this exercise, committees might find useful to refer to EfficienSea2 “Report on Review of IALA documentation related to VHF Data Exchange System” available at <https://www.iala-aism.org/content/uploads/2018/05/D1.12-Report-on-Review-of-IALA-documentation-related-to-VHF-Data-Exchange-System-v4.pdf>.

* VDES being a rather new technology, its many possible uses are still being discovered and documented. As such, committees are invited to consider the on-going changing nature of VDES in their decision to modify their documents.
* When an IALA document is ‘withdrawn’ or ‘archived’, it is recommended that a reference is made on the website to the document, with indication of status (e.g archived, withdrawn) and date the document was removed.

• To facilitate review of historic documents, it is suggested to develop an ‘archive’ document area on the website, with a suitable disclaimer regarding the status of the documents found on the site. All documents posted to the archive area should be clearly marked as such.

• When an IALA document is superseded by another document or has been merged in a new document, it is recommended that a reference is made on the website to the document, with indication that the document has been superseded / combined with another document, indication (with hotlink) of the new document, and the date this was done.

• Where documents are related – such as V-128 and associated guidelines, recommend including the reference on the website, with hot links, and, if possible, providing a ‘grouped’ reference. Reference to the appropriate guideline(s) / recommendation(s) should also be included in the document revisions section.

The table below presents the recommended changes to IALA documents to support the proposed document architecture, but also to account for VDES development and required changes. The table is sorted:

1. By committee responsible for the document (ENAV – ARM - VTS).
2. By subject (ENAV - AIS – ASM – VDE)
3. By Type (Recommendation – Guideline)

\*\*\*Documents that have been superseded are noted in light grey.

| **Subject** | **Document** | **Title** | **Type** | **Committee** | **Observations** | **Recommendation** | **Priority** |
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| eNAV | NEW | e-navigation Communications or e-navigation Shore-based services and communications | Recommendation | ENAV |  | Create this new recommendation referencing the MRCP to help members select the appropriate means of communications for e-navigation. Alternatively, the recommendation scope could be widened to include also shore-based infrastructure for Maritime Service and reference those documents as well for full e-navigation guidance for members. Potential references: eNAv-140; eNAv-148; 1113; 1114 (CSSA); | 1 |
| eNAV | MRCP | Maritime Radio Communication Plan | Guideline (proposed) | ENAV | This document is currently not recognized in the IALA hierarchy of documents. It is neither a standard, a recommendation, a guideline or a manual. | Turn into a guideline. Provides options to shore authorities. May need to improve wording to guide national members through the choices. introduce the concept of public communication networks vs dedicated (shore based authority managed) communication networks and their envisioned role in e-navigation. | 1 |
| AIS | R-1008 | New proposed recommendation for AIS | NOT REQUIRED | ENAV | R1008 was supposed to become a new recommendation for AIS to replace A-124. The remainder of A-124 would’ve been transferred to a Guideline. | Instead of creating a new R1008, review A-123 to include recommendation content from A-124 and create a guideline for remainder of A-124. R1008 would no longer be required. | 1 |
| AIS | A-123 | Provision of Shore Based AIS | Recommendation | ENAV | Dates back to June 2007. Highlights the requirement for members to establish AIS shore stations to respond to the SOLAS Chapter V, Reg. 19 (2.4) indication that AIS ship units can exchange information with the shore. | Review document, especially annex. | 2 |
| AIS | A-124 | AIS Service | Recommendation | ENAV | Dates back to last review 2012. Most content still valid. Indicates technical elements of networking AIS shore stations as part of an AIS service. | Instead of creating a new R1008, review A-123 to include recommendation content from A-124 and create a guideline for remainder of A-124. Suggest general overhaul of the A-124 series to be more streamlined and reduce extraneous references to appendixes that have never been developed / are unnecessary. | 2 |
| AIS | E-NAV146 | Strategy for Maintaining Racon Service Capability | Recommendation | ENAV | Notes the development of NT Radars; the changes in development of S-band radars (not to trigger Racons – IMO MSC Resolution 192(79); the potential role of AIS. | amend section 5.6 – non radar technology. Could also include text in section 6 – strategy. This document deals directly with AtoNs, should it be transferred to ARM committee? | 3 |
| AIS | 1028 | UNIVERSAL AUTOMATIC IDENTIFICATION (AIS) – VOLUME 1 PART 1 – OPERATIONAL ISSUES | Guideline | ENAV | Dates back to 2004. Identified under AIS committee. Not found on IALA website, suspect it was superseded by A-124. | Superseded. |  |
| AIS | 1029 | UNIVERSAL AUTOMATIC IDENTIFICATION (AIS) – VOLUME 1 PART 2 – TECHNICAL ISSUES | Guideline | ENAV | Dates back to 2001. Identified under AIS committee. Not found on IALA website, suspect it was superseded by A-124. | Superseded. |  |
| AIS | 1059 | The comparison of AIS stations | Guideline | ENAV | Dates back June 2008. Not found on IALA website, suspect it was superseded by 1082 as most AIS station information are now found in 1082. | Superseded. |  |
| AIS | 1082 | An Overview of AIS | Guideline | ENAV | Dates back to 2011. | Would need to be reviewed. Also the messages details in annex should maybe simply refer to the current version of 1371 to avoid this document going out of date (avoid replicating the information). | 3 |
| ASM | E-144 | Harmonized implementation of Application Specific Messages (ASM) | Recommendation | ENAV | Title is confusing because of ASM channels part of VDES. Also same title as G-1095 which is under ARM committee responsibility. | Need to create an annex to clearly explain the channels and how to deal with messages or alternatively refer to the guideline G-1095. Need to consider the co-location with AIS. | 2 |
| VDES | R1007 | The VHF Data Exchange System (VDES) for Shore Infrastructure | Recommendation | ENAV | Good example of what a recommendation should be. | Add a reference to a VDES Guidelines document maybe as an Annex as per A-123. | 1 |
| VDES | G-1139 | THE TECHNICAL SPECIFICATION OF VDES | Recommendation | ENAV |  | Some of the content of the main document might be transferred to the MRCP to help guide members in selecting AIS, ASM and VDE for their requirements. | 1 |
| VDES | G-1117 | VHF DATA EXCHANGE SYSTEM (VDES) OVERVIEW | Guideline | ENAV |  | Needs a good review, some parts are MRCP, some are VDE. Would suggest to improve the differences between VDE-TER and VDE-Sat, especially on the bandwidth available to manage expectations. Need to review the scenarios to make sure we can still support them all (tele-medical, chart-update, etc) introduce R-mode?. Need to include guidelines on how to configure VDES for shore authority, e.g. bulletin board configuration. Is a new guideline required for that? | 2 |
| AIS | O-138 | The Use of GIS and Simulation by AtoN Authorities | Recommendation | ARM | Under ARM committee responsibility. Identified under ANM. Links to Reg 13 of SOLAS re AtoN and notes the benefits of GIS and simulation techniques in assisting AtoN authorities in assessing the requirement for, and provision of AtoN. | Add in overview para noting the link to AIS within the document. confirm outcomes of Korea workshop (Oct 2016) | 3 |
| AIS | O-139 | The Marking of man-made offshore structure | Recommendation | ARM | Wrong reference in 1.4 to O-130 should R-1001. Identified under ANM. Identifies options to mark the increasing number of man-made structures as sea – including those that may be isolated or in groups, and in various locations. | Uses of AIS for that purpose should be update. May be linked to Oct 2016 Korean workshop. | 3 |
| AIS | E-142 | Maritime Data Sharing ‘IALA-NET’ | Recommendation | EEP | Recognises the development of vessel tracking technologies and capabilities and recommends that National Members participate in IALA-NET. | As VDES develops, requirement for / desire to share information is expected to grow. Probably it should now be maintained by ARM as EEP does not exist anymore. | 3 |
| AIS | R-1001 | IALA Maritime Buoyage System | Recommendation | ARM | General principles and rules of the IALA Buoyage System | No changes proposed |  |
| AIS | A-126 | Use of AIS in Marine Aids to Navigation Services | Recommendation | ARM | Under ARM committee responsibility. Identified under ANM. Dates back to 2011. Notes opportunities for using AIS to assist in the provision of an AtoN service. | The annex should be transferred to a guideline. ARM most likely will want to review the content. | 3 |
| AIS | O-143 | VIRTUAL AIDS TO NAVIGATION | Recommendation | ARM | Under ARM committee responsibility. Identified under ANM. Dates back to 2013. Recognises the value of virtual AtoN, as well as the issues and concerns. Also notes the need to display information. (Guideline 1081 refers) confirm outcome from Korean workshop (Oct 2016) | The annex should be transferred to a guideline. ARM most likely will want to review the content. | 3 |
| AIS | 1062 | The establishment of AIS as an Aid to Navigation | Guideline | ARM | Under ARM committee responsibility. Identified under ANM. Description, Criteria and applications of AIS as AtoN. | May need additional details in the section dealing with accessing the VDL (section 7) such as the recommended FATDMA allocation for AtoN and also the downside of using MMSI to differentiate between virtual and real AtoNs. ARM may want to review this to add additional applications of AIS AtoNs such as reference points for equipment configuration validation. | 3 |
| AIS | 1081 | Provision of Virtual Aids to Navigation | Guideline | ARM | Under ARM committee responsibility. Identified under ANM. Somewhat similar to 0-143. | May require better coordination with O-143. | 3 |
| AIS | 1084 | Procedure for the Authorisation of AIS AtoN | Guideline | ARM | Under ARM committee responsibility. Identified under ANM. | May need to update Annex A where details of the AtoN message have changes since 1371 version used for this document. | 3 |
| AIS | 1097 | Technical Features and Technology Relevant for Simulation of AtoN | Guideline | ARM | Not identified to a committee on the IALA website. Sets requirements for the use of simulation as a tool for waterway design and AtoN planning. | Should maybe be under ARM committee responsibility. No changes proposed to document. | 3 |
| AIS | 1098 | the Application of AIS - AtoN on Buoys | Guideline | ARM | Under ARM committee responsibility. Identified under ANM. Application of employing AIS-AtoN on buoys and is designed to offer guidance regarding specification, installation and maintenance. Is complementary to A-126. | No changes proposed. |  |
| AIS | R-1050 | Management and monitoring of AIS Information | Guideline | ARM | Dates back to Dec 2005. | Merge with A-123 especially in the annex where we describe the benefits of AIS. Some more technical content may be more suited in A-124 as a guideline. | 2 |
| ASM | G-1095 | HARMONISED IMPLEMENTATION OF APPLICATION-SPECIFIC MESSAGES | Guideline | ARM | Under ANM committee responsibility. Identified under ANM. Dates back to 2013. | Should review to make sure content is still current and applies for ASM channels. Need to coordinate with E-144 (recommendation with same title) Transfer under ENAV committee responsibility? | 2 |
| AIS | V-103 | Training and Certification of VTS Personnel | Recommendation | VTS | Under VTS committee responsibility. Includes a series of model course (V-103/1; V-103/2; V103/3; V-103/4; and V-103/5) | Courses 1-3-5 have references to AIS that should be reviewed. | 3 |
| AIS | V-125 | The use and presentation of symbology at a VTS Centre | Recommendation | VTS | Under VTS committee responsibility. Provides information on  symbology for use at VTS  Centres | No changes proposed. |  |
| AIS | V-128 | Operational and Technical Performance of VTS Systems | Recommendation | VTS | Under VTS committee responsibility. No AIS content anymore. AIS content moved to G1111? | No changes proposed. |  |
| AIS | V-145 | The Inter-VTS Exchange Format (IVEF) service | Recommendation | VTS | Under VTS committee responsibility. Presents IVEF as a common framework for the exchange of vessel traffic information / vessel traffic image between shorebased e-navigation system. | Link to AIS Shore side update A-123; A124 appendixes | 3 |
| AIS | G1111 | PREPARATION OF OPERATIONAL AND  TECHNICAL PERFORMANCE REQUIREMENTS  FOR VTS SYSTEMS | Guideline | VTS | Under VTS committee responsibility. | Suggest a full review of section 3 on AIS by WG3 as some information in there is not factual. | 3 |
| AIS | 1026 | AIS as a VTS tool | Guideline | VTS | Dates back June 2008. Not found on IALA website, suspect it was superseded |  |  |
| AIS | 1032 | Training of VTS personnel on AIS | Guideline | VTS | Dates back June 2008. Not found on IALA website, suspect it was superseded |  |  |

**Annex 2: Proposed changes in document ownership**

The ENAV committee proposes to transfer the responsibility of the following documents under the ARM committee for review, maintenance and future updates to these documents.

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| Number | Title | Subject | Proposed updates |
| E-NAV146 | Strategy for Maintaining Racon Service Capability | Notes the development of NT Radars; the changes in development of S-band radars (not to trigger Racons – IMO MSC Resolution 192(79); the potential role of AIS. | Add information related to AIS in section 5.6 – nonradar technology. Could also include text in section 6 – strategy. |
| E-142 | Maritime Data Sharing ‘IALA-NET’ | Recognises the development of vessel tracking technologies and capabilities and recommends that National Members participate in IALA-NET. | As VDES develops, requirement for / desire to share information is expected to grow. |
| 1097 | Technical Features and Technology Relevant for Simulation of AtoN | Not identified to a committee on the IALA website. Sets requirements for the use of simulation as a tool for waterway design and AtoN planning. | No changes proposed to document. |

In addition, the ENAV committee proposes to transfer the responsibility of the following ARM documents under the ENAV committee for review, maintenance and future updates to these documents.

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| Number | Title | Subject | Reasoning |
| G-1095 | HARMONISED IMPLEMENTATION OF APPLICATION-SPECIFIC MESSAGES | Use and role of ASM in e-navigation, International vs Regional ASM, some technical aspects. | ENAV committee has recommendation E-144 with same title under its responsibility. Both documents should be coordinated and updated to reflect new ASM channels under VDES and their intended usage. |
| R-1050 | Management and monitoring of AIS Information | General AIS shore-network usage, benefits and limitations. | Document should be merged with Annex of A-123 which explains the benefits of an AIS shore-based network. Some more technical content might be better in the A-124 guideline. |