Development of VDES in IALA

2:nd Workshop on International Standardization of VDES

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Swedish Maritime Administration- SMA

- SMA responsible for
  - Fairways and AtoN
  - Pilotage
  - VTS
  - Icebreaking
  - Search and Rescue
  - Hydrology

along a 2700 km coastline
Presentation content

• Background
• IALA working procedures
• IALA work on Communication Systems
• IALA work on VDES
• Planning for future work
Background

• Increasing demand for data communication

• e-Navigation accentuates this trend

• IALA important role in development of AIS

• AIS is a low capacity data communication tool
Background

• The success of AIS resulted in a need to increase its capacity

• ITU WRC 2007 invited IALA to contribute to studies on future use of spectrum
IALA working procedures

- IALA Assembly
- IALA Council
- eNAV Committee
- Working Group AIS+COMMS
- Ad Hoc Drafting Groups

External docs

IALA Secretariat
IALA work on Communication Systems

• Radionavigation Committee
  WG AIS
  WG Future Communication

• AIS Committee

• eNAV Committee
  WG AIS
  WG Communication
IALA work on Communication Systems

• Radionavigation Committee
  WG AIS
  WG Future Communication

• AIS Committee

• eNAV Committee
  WG AIS
  WG Communication
  \[ \text{WG AIS+COMMS} \]
IALA work on Communication Systems

- Maritime Radio Communication Plan
  - Developed to assist in selection of systems to support e-Navigation
  - To state the IALA vision for use of the spectrum
  - Focus on the need for an agreed infrastructure
  - Guidance to IALA members
IALA and AIS

- IALA developed and updated ITU-R M.1371-x
  - Developed guidelines for implementation and use of AIS

- IALA noted the need for
  - Protection of AIS frequencies
  - Satellite detection of AIS
  - Increased communication capacity in AIS

- IALA organized the collection of AIS ASM and developed guidelines for the use of AIS ASM

- Liaison with ITU, IMO, IEC, RTCM
IALA liaison to ITU, 2008

• “IALA’s vision and strategy for maritime systems propose a significant shift from analogue to digital communications in the VHF maritime band (Radio Regulations Appendix 18), as well as advanced AIS technologies, which IALA believes will greatly contribute toward the modernization of the GMDSS.”
IALA liaison to ITU WP 5B, 2010

• The protection of AIS1 and AIS2 channels for the safety of navigation as well as distress and safety communications. In addition, allow AIS transmissions by SAR aircraft.

• AIS channels for satellite tracking (channels 75 and 76).

• Additional channels for the next generation of AIS. IALA envisaged the necessity of a next generation of AIS, which would require two additional channels for low volume TDMA digital communications using AIS techniques.

• Spectrum resources for application of the VHF Data Service as described in Recommendation ITU-R M.1842-1 annexes 3 and 4. IALA envisaged e-Navigation would require a minimum capacity of 150 kHz equivalent to six 25 kHz channels.
IALA liaison to ITU WP 5B, 2011

• IALA requests that ITU designate RR Appendix 18 channels 27 and 28 for AIS 5 and AIS 6 and the contiguous group of the 6 channels 24, 84, 25, 85, 26 and 86 for the VHF Data Exchange of safety and security related information"
IALA input to IMO eNAV CG
(2011)

• Essential elements on e-Navigation Communication
  - Next generation AIS;
  - VHF Data exchange;
  - 500 kHz Digital broadcast
<table>
<thead>
<tr>
<th>NEXT GENERATION AIS</th>
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<tr>
<td><strong>AIS channels</strong></td>
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<td><strong>(simplex or duplex pairs)</strong></td>
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| **Purpose**         | • Safety of navigation  
                      • Maritime and inland distress and safety communications | • Space detection of AIS  
                      • Future SAR | • Marine safety information  
                      • General purpose information communication | • Management of VHF VDL in harmony with current ITU-R M.822-1 |
| **Frequency allocation** | • Allocated / needs to be dedicated | • New / dedicated channels required | • New / shared channels required | • Allocated and dedicated |
| **AIS Message types** | • Vessel identification  
                      • Vessel dynamic data  
                      • Vessel static data  
                      • Aids to Navigation | • Space detection of AIS  
                      • Other messages for support of future SAR | • Regional AIS binary messages  
                      • S/N Circ 289 international AIS binary messages | • TDMA system management messages e.g. Message 20, Message 22  
                      • Other messages for support of coordinating channel sharing |
| **Typical applications** | • Ship to ship collision avoidance  
                      • VTS tools  
                      • Tracking of ships  
                      • Locating in SAR | • Detection of vessels by coastal states beyond range of coastal AIS base stations  
                      • Traffic management  
                      • Channel management of AIS channels and future VHF digital data channels  
                      • Future distress alerting | • Area warnings and advice  
                      • Meteorological and hydrological data  
                      • Traffic management  
                      • Channel management of AIS channels and future VHF digital data channels  
                      • Ship-shore data exchange | • Channel switching  
                      • FATDMA allocation  
                      • Assignment |
| **Proposed channels in Appendix 18** | • As now | • Channels 75 and 76 | • World-wide dedicated channels 27 and 28 are preferred | • As now but requires Appendix 18, Footnote 1, and ITU-R M.822 modification |
The name

- IMO didn’t accept the term ”Next Generation AIS” – ”no decision on a new AIS”

- IALA chose to use VDE -VHF Data Exchange for the new functionality

- AIS and VDE – two complementary systems. The Tokyo-meeting 2012 proposed VDES - VHF Data Exchange System, accepted by IALA
IALA and VDES

- Continued work based on the outcome of WRC 2012
  - Updated plan for a VHF Data Exchange System to ITU WP 5B
  - Information paper on VDES
  - Information paper on Technical Guidelines for implementation of VDES
Future work

• Continued work on the draft Recommendation

• Propose and coordinate studies and test

• Provide supporting material to ITU WP 5B

• Keep IALA members informed to enable a timely implementation
Complications

• Draft SIP (IMO eNAV CG)
  ...seamless transfer of electronic information/data between ship and shore and vice versa and between ship to ship and shore to shore.

• NAV 59 agreed that:
  the work should be based on systems that were already in place (according to the already adopted Strategy for the development and implementation of e-navigation (MSC 85/26/Add.1, annex 20)) and that the development of potential future carriage requirements should therefore be strictly limited;
Thank You!

Rolf Zetterberg
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