IALA and the physical & logical eNAV communication framework

Ómar Frits Eriksson
Director, Maritime Technology & Business Development at DMA
Chair IALA e-NAV Committee
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Important Window of Opportunity

MARINE eNAVIGATION: AN ORIENTATION PAPER
By Brian Wadsworth, U.K. Department for Transport

Summary

1. This paper argues that we have an important window of opportunity to make marine navigation easier and to reduce navigational errors, with their attendant toll of accidents, loss of life, injury and environmental damage. Electronic navigational technologies are already available, being developed or are capable of development, which can be integrated to provide an accurate, secure and highly cost-effective e-Navigation system, with potentially global coverage. The same technologies are scalable for use by larger and smaller vessels.
What is it?
The transmission, manipulation and display of navigational information in electronic formats,

Why is it needed?
to minimise navigational errors, incidents and accidents, to improve security and to reduce costs for shipping and coastal states
e-Navigation aims to replicate,
in the field of “marine navigation”,

standards of safety and accuracy
associated with “air navigation”
Common Standards & Protocols

“Delivering fully viable systems with global coverage Will undoubdably take years”
IALA Strategic Goal for e-Navigation

• Harmonize the information structure, Maritime Service Portfolios and Communications for e-Navigation

• By creating standards and by cooperation with other IGO’s

• To achieve worldwide interoperability of Shore and Ship systems.
IALA e-Navigation Committee, structure

- WG 1  Harmonization
- WG 2  Implementation
- WG 3  Telecommunication
- WG 4  ENAV Services
- WG 5  PNT (Position, Navigation Timing)
WG1 - Harmonization

The development of internationally accepted and harmonized principles, concepts, data models, services and systems for e-Navigation.
WG2 - Implementation

Center of excellence for sharing information on e-Navigation test beds.

Monitor the e-Navigation strategy implementation to provide advice to IALA Membership on the implementation of e-Navigation.
WG3 - Telecommunication

All telecommunication aspects,
including both terrestrial and space based
radio communications,
AIS, VDES, except radionavigation (PNT).
WG4 - ENAV Services

Define the content of e-Navigation services, operational (i.e. information) aspects of e-Navigation and the value added services provided to users.
WG5 – Positioning, Navigation & Timing

All aspects of Positioning, Navigation and Timing systems including resilience, reliability and integrity.
Workplan next 2 years

• e-Navigation infrastructure and governance
• Maritime Service Portfolios
• S-100 Product Specifications
• Communication channels –> VDES ++
• Testbeds and implementation activities
• PNT solutions,
  R-Mode – utilizing all signals of opportunity
A Maritime Infrastructure Framework

(... also for e-navigation)

- Ship operations management
- Sea Traffic Management
- Cargo Management
- Inter-Modal Transport Management
- OffShore Operations
- Infrastructure framework
- Maritime Safety
- Trade Facilitation
- E-maritime
- Single Window
- e-navigation

Jens K. Jensen
Danish Maritime Authority

Mikael Lind
Viktoria Swedish ICT AB

Kwangil LEE
ETRI, Republic of Korea

Danish Maritime Authority

Swedish ICT Viktoria

ETRI Electronics and Telecommunications Research Institute
Unique Identifiers for Maritime Resources

• facilitates global harmonisation of information flow in e-navigation

• may potentially be adopted by the whole maritime community including IHO and IMO.
This Euler diagram shows that a Uniform Resource Identifier (URI) is either a Uniform Resource Locator (URL), a Uniform Resource Name (URN), or both.
Syntax of a Uniform Resource Name (URN)

"urn:mrn:"<NSS>

- “mrn” identifies a unique namespace within URN.
- <NSS> is the Namespace Specific String

<NSS>::=<governing-organization>""<type>""<type-specific-part>

Based on RFC 2141
Unique AtoN identifiers

\texttt{urn:mrn:iala:aton:<countrycode>:<NationalIdentifier>}

Example:

\texttt{urn:mrn:iala:aton:us:1234.5}
Unique DGNSS station identifiers

urn:mrn:iala:dgps:<countrycode>:<NationalIdentifier>

Example:

urn:mrn:iala:dgps:dk:12345
Unique MMSI identifier

\texttt{urn:mrn:itu:mmsi:<countrycode>:<NationalIdentifier>}

Example:

\texttt{urn:mrn:itu:mmsi:fr:238070999}
Unique Navigational Warning identifier

urn:mrn:iho:nw:<countrycode>:<Identifier>

Example:

urn:mrn:iho:nw:dk:0123456789

i.e. Danish Navigational Warning nr. 0123456789
Our Business is changing
Steve Sasson, the Kodak engineer who invented the first digital camera in 1975, characterized the initial corporate response to his invention this way:

But it was filmless photograph, so management’s reaction was, ‘that’s cute - but don’t tell anyone about it.’

We are in the business of ”High Tech Paper and Chemicals” not the business of ”Sharing moments”

Kodak went bankrupt in 2012
We are in the Business of Connectivity

Connectivity is the enabler for oceans of business opportunities

Information exchange, Route exchange, Internet of things, MSI, "Skype for ships", etc..

Connect or go Kodak!
Thank you...

ofe@dma.dk
@Omaritime
Oferiks