RISECDIS
Inland ECDIS

Virtual Aids to Navigation

Meeting 2013-06-11

Decin

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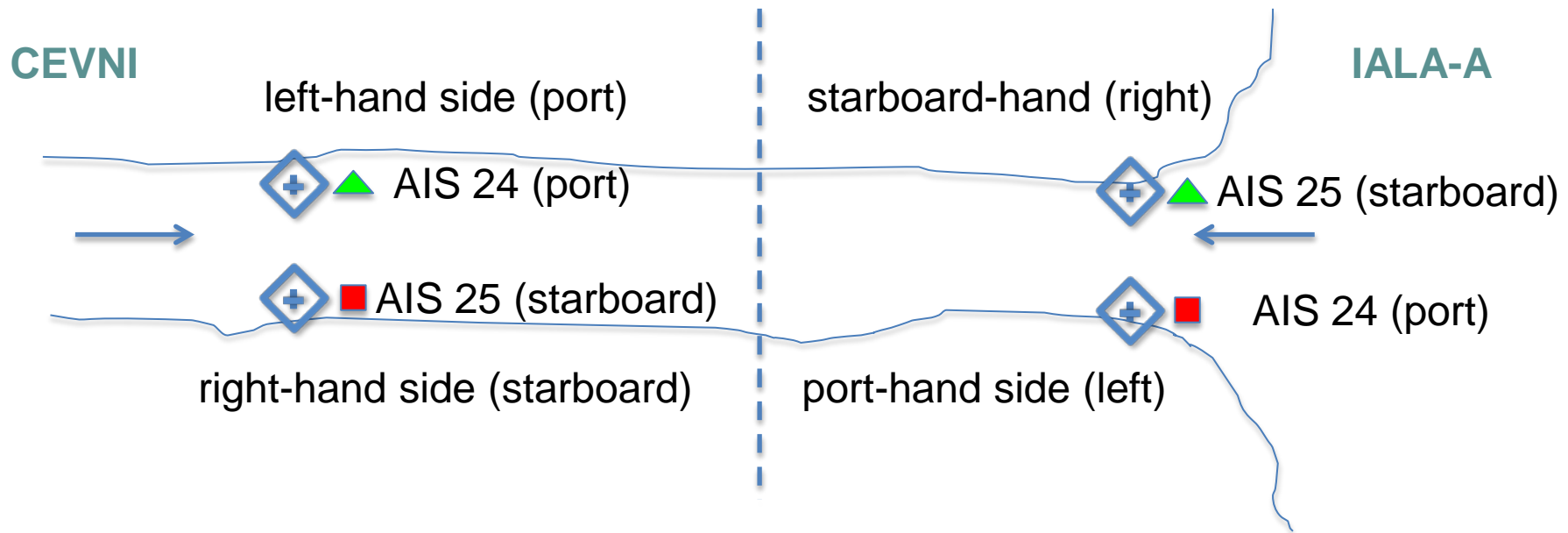# Possible benefits of AtoN messages

- Real buoy with AIS: information whether the buoy is on its place or dislocated (for administration and vessels)

- Real buoy and AIS on land: information where the buoy should be (for vessels)

- Virtual buoy: reduction of costs for the administration and possibility to mark special fairways for certain types of vessels

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AIS AtoN message

| AIS message 21 Type of AtoN	IALA-A	CEVNI
24 Port hand mark (left)	Red / square	Green / conical
25 Starboard hand mark (right)	Green /conical	Red /square

○ The Inland ECDIS system is not able to determine a correct display of the AtoN → generic symbol, meaning displayed as text in the pick report

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AIS AtoN message

left-hand side (port)

starboard-hand (right)

▲ AIS 24 (port)

▲ AIS 25 (starboard)

■ AIS 25 (starboard)

■ AIS 24 (port)

right-hand side (starboard)

port-hand side (left)

↻ Real buoyage is unambiguous

↻ Neither the AtoN-symbolization nor the AtoN pick report
is containing unambiguous information

AIS AtoN message

AIS 25 (starboard)
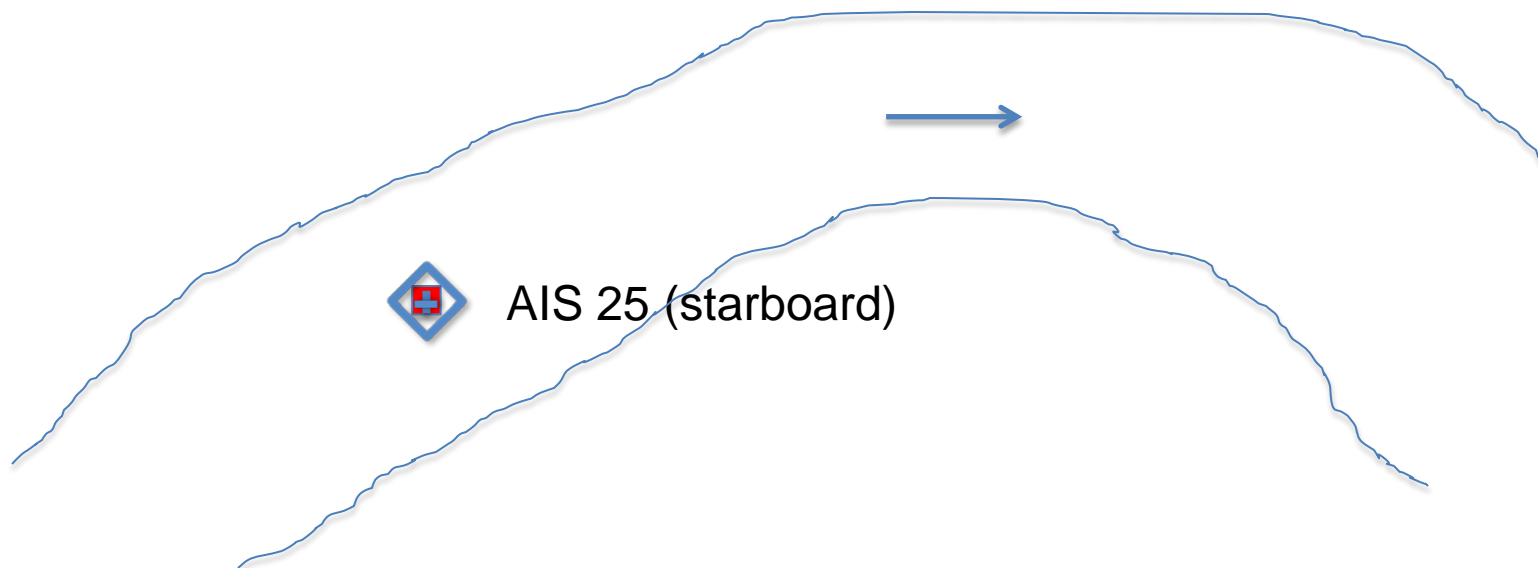
- Real buoyage is unambiguous

- Neither the AtoN-symbolization nor the AtoN pick report is containing unambiguous information

AIS AtoN message

- CEVNI buoy "Bifurcation of the fairway" (without a preferred channel) cannot be encoded

- CEVNI buoy "Bifurcation of the fairway, preferable to pass on the right/left hand side": same problem with right and left respectively red and green

- An Inland specific AtoN message is needed to transmit clear information about CEVNI buoys

Types of AtoNs and vessels

- Real buoy: always encoded in the IENC
- Real buoy with AIS: no rule whether it has to be encoded in the IENC or not
- Virtual buoy: no rule whether it has to be encoded in the IENC or not
- Vessels without Inland ECDIS and without Inland AIS
- Vessels with Inland ECDIS only
- Vessels with Inland AIS only
- Vessels with Inland ECDIS and Inland AIS

Types of AtoNs and vessels

Type of buoy AIS Coded in IENC	Real No AIS Coded	Real AIS Coded	Real AIS No	Virtual AIS Coded	Virtual AIS No
Vessel without equipment					
Vessel with ECDIS only					
Vessel with AIS only					
Vessel with ECDIS + AIS		2		2	

Virtual buoys in Inland ECDIS

- A real buoy is not only displayed in Inland ECDIS, but can also be seen in reality and is displayed on the radar screen
- A virtual buoy is only displayed on the Inland ECDIS
- Inland ECDIS in information mode:
  - Low accuracy and reliability of vessel position
  - No heading
  - The skipper can only guess whether he will pass the virtual buoy on the left or on the right side
- Information mode is not sufficient for virtual buoys

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Use of AIS AtoNs

- ○ Virtual buoys can only be used if <u>ALL</u> vessels are equipped with Inland AIS and Inland ECDIS in navigation mode (future versions!)

- ○ Everywhere else it is only possible to use real buoys with additional Inland AIS (to transmit the up-to-date position of the buoy)

- ○ We need a different symbolization for the buoys encoded in the IENC and the same buoys transmitted by Inland AIS

Proposed steps

For real buoys (and beacons) with additional Inland AIS:

- ○ Amendment of the Inland AIS standard with a CEVNI AtoN message
- ○ Amendment of the Inland ECDIS standard with display requirements for these messages and encoding instructions
- ○ Adoption and publication of the amended standards
- ○ Updating of the applications
- ○ Use of AtoNs on real buoys

Proposed steps

Additional steps for virtual buoys:

- ⟳ Amendments of CEVNI, Rhine Police Regulation, DFND, Sava and Mosel regulations and national police regulations to allow virtual buoys

- ⟳ Equipment programs?

- ⟳ Introduction of carriage requirements for the latest (future) editions of Inland AIS and Inland ECDIS in navigation mode for <u>ALL</u> vessels (including small craft)

- ⟳ Use of virtual AtoNs

Thank you for your attention!

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