



Federal Ministry
of Transport and
Digital Infrastructure



RIS in Germany

RIS week 2014

Berlin



Main Waterways in Germany

The German Waterway and Shipping Administration maintains

- 23,000 km² maritime waterways
- 7,300 km inland waterways
 - 5,100 km main waterways (class IV or above)
- New waterway categories according to the amount of transport
- **red** - waterways priority A
- **yellow** - waterways priority B
- **black** – waterways priority C
- **blue** – other waterways
- **green** - priority current open





Current RIS-Applications

Information Services

- NIF – nautical information service via VHF-radio
- VTS – „Gorge section“ – Information about traffic flow by special visual aids
- ELWIS – Electronic Waterway Information Service (internet service)
- ELWIS-Abo – Subscription for Information via SMS or email

Management Services

- On Board
 - ARGO – Advanced River Information (Inland ECDIS)
 - AIS – Automatic Identification System
- On Shore
 - MOVES – lock management service (Modern Traffic Data Collection System)
 - MIB – Information service for calamity abatement



RIS-Systems in use

- Visual and radar reflecting aids to navigation, light signals
- Mobile Phone (voice and data)
- VHF-radio
- Internet
- Vessel - based radar
- Shore - based radar
- (D)GPS for vessel positioning
- Electronic nautical charts
- Ship reporting system



ELWIS – The German internet portal for inland navigation

- ELWIS access in 2013:
- **51,3 mio.** visited the ELWIS homepage.
- **3,2 mio.** emails sent.
- 263 ELWIS-authors feed data into the system.
- At the moment, a route- and chart-based search function is being developed.

Elektronischer Wasserstraßen-Informationsservice (ELWIS)

Sie sind hier: Startseite » NFB

Nachrichten für die Binnenschifffahrt

Es wurden 374 Datensätze gefunden.
184 weitere Datensätze sind aktuell gültige Fahrpläneinschränkungen und können [hier](#) eingesehen werden.

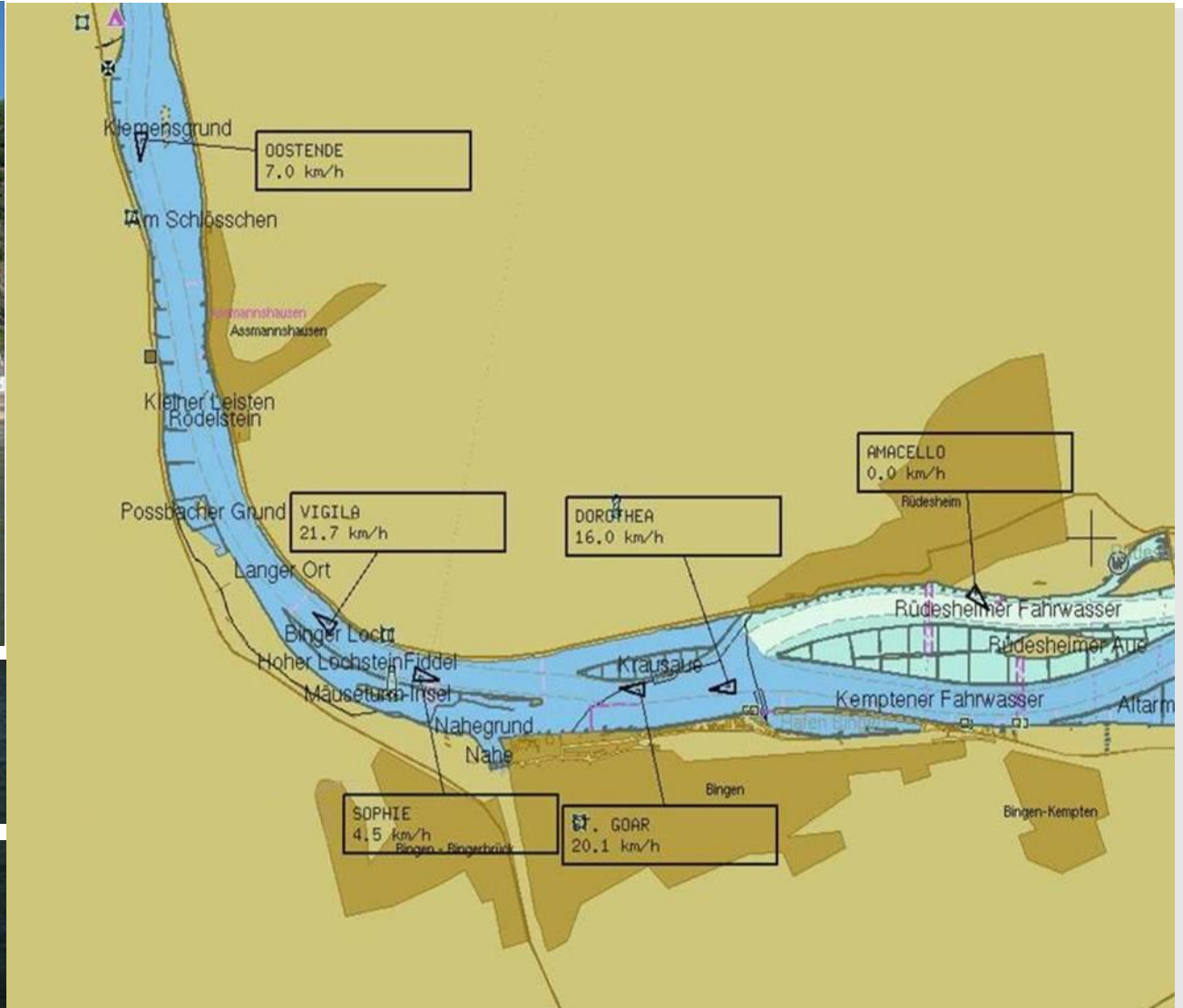
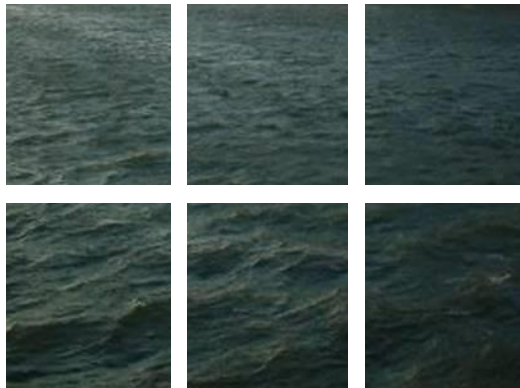
Alle Nachrichten in der Detailsicht anzeigen

In der Detailsicht werden alle hier gefundenen Nachrichten ausführlich mit allen Einzelheiten und Einschränkungen in einer Übersicht angezeigt. Die Reihenfolge der NFB ist dabei genau wie in der unten stehenden Liste. Sie können dort die NFB nach ID (neue NFB zuerst), Wasserstraße, Gültigkeit oder Herausgabedatum sortieren. Der Pfeil zeigt die aktuelle Sortierung an.

Sie Ihre Auswahl zu viele Ergebnisse liefern (Ladezeit zu lang), schränken Sie diese über die Suchkriterien weiter ein.

Nr.	ID	Wasserstraßen(n) Titel	km von km bis	gültig von gültig bis	Einzelsteller Herausgabedatum
1	0362/2014	Wesel-Datteln-Kanal-Schleuse Flaesheim Wesel-Datteln-Kanal-Schleuse Ahsen Wesel-Datteln-Kanal-Schleuse Datteln große Kammer Betrieb geändert wegen Arbeiten	48,7 48,7 55,8 55,8 59,5 59,5	8. Mrz. 2014 10. Mrz. 2014	WSA Duisburg-Heiderich 7. Mrz. 2014
2	0261/2014	Main-Donau-Kanal - Schleuse Hausen Einschränkungen wegen Bauarbeiten: Betrieb eingeschränkt	32,9 32,9	10. Mrz. 2014 10. Mrz. 2014	WSA Nürnberg 7. Mrz. 2014
3	0356/2014	Donau - Liegestelle Donau Anliegeverbot wegen Arbeiten: Anliegeverbot	2226,7 2226,8	10. Mrz. 2014 auf Widerruf	WSA Regensburg 6. Mrz. 2014
4	0354/2014	Neckar - Spentor HEILBRONN ALTNECKAR Sperrung wegen Arbeiten: Sperrung	115,0 115,1	11. Mrz. 2014 11. Mrz. 2014	WSA Heidelberg 6. Mrz. 2014
5	0351/2014	Mosel - Schleuse Trier Nachricht wegen Bauarbeiten: keine Einschränkung	195,8 195,8	6. Mrz. 2014 auf Widerruf	WSA Trier 6. Mrz. 2014
6	0348/2014	Rhein - Fahrwasser Rhein Durchfahrtschleuse wegen Inspektion: Durchfahrtschleuse	778,4 778,4	17. Mrz. 2014 28. Mrz. 2014	WSA Duisburg-Rhein 5. Mrz. 2014
7	0347/2014	Rhein - Fahrwasser Rhein Durchfahrtschleuse wegen Inspektion: Durchfahrtschleuse	778,4 778,4	14. Mrz. 2014 17. Mrz. 2014	WSA Duisburg-Rhein 5. Mrz. 2014
8	0346/2014	Rhein - Fahrwasser Rhein Durchfahrtschleuse wegen Inspektion: Durchfahrtschleuse	778,4 778,4	7. Mrz. 2014 10. Mrz. 2014	WSA Duisburg-Rhein 5. Mrz. 2014
9	0345/2014	Elbe - Fahrwasser Elbe Veranstaltung wegen Feuerwerk: keine Einschränkung	34,5 34,5	8. Mrz. 2014 8. Mrz. 2014	WSA Dresden 5. Mrz. 2014
10	0344/2014	Elbe (Hafen Hamburg) - Fahrwasser Elbe (Hafen Hamburg) Betriebsstopp wegen Reparaturarbeiten: Betriebsstopp	615,0 615,0	31. Mrz. 2014 4. Apr. 2014	Oberhafenamt Hamburg (HPA) 5. Mrz. 2014
11	0343/2014	Elbe (Hafen Hamburg) - Fahrwasser Elbe (Hafen Hamburg) Sperrung wegen Reparaturarbeiten: Betrieb eingeschränkt	614,0 615,0	4. Mrz. 2014 21. Mrz. 2014	Oberhafenamt Hamburg (HPA) 5. Mrz. 2014
12	0341/2014	Schleusenkanal Petershagen - Fahrwasser Schleusenkanal Petershagen Besatzungsverbot wegen Inspektion: Besatzungsverbot, besondere Vorsicht	4,3 4,4	10. Mrz. 2014 14. Mrz. 2014	WSA Verden 4. Mrz. 2014

Implementing Inland AIS into the German RIS

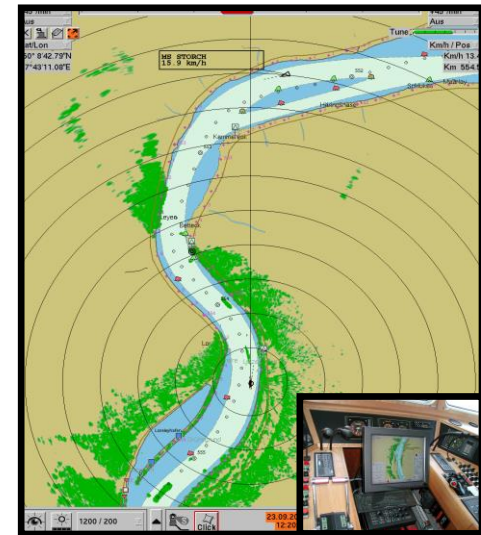
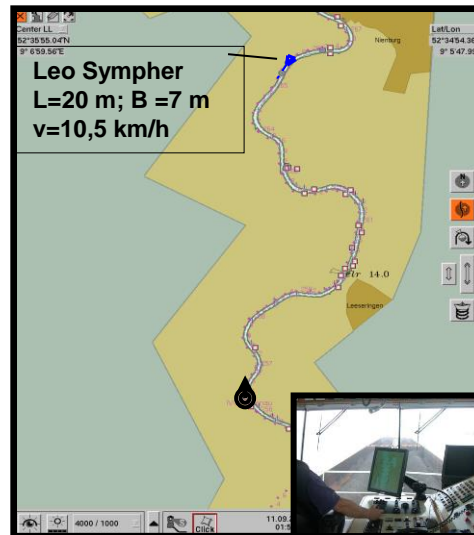




Precondition I - Vessel equipment Inland AIS connected to ENC (e.g. IECDIS)

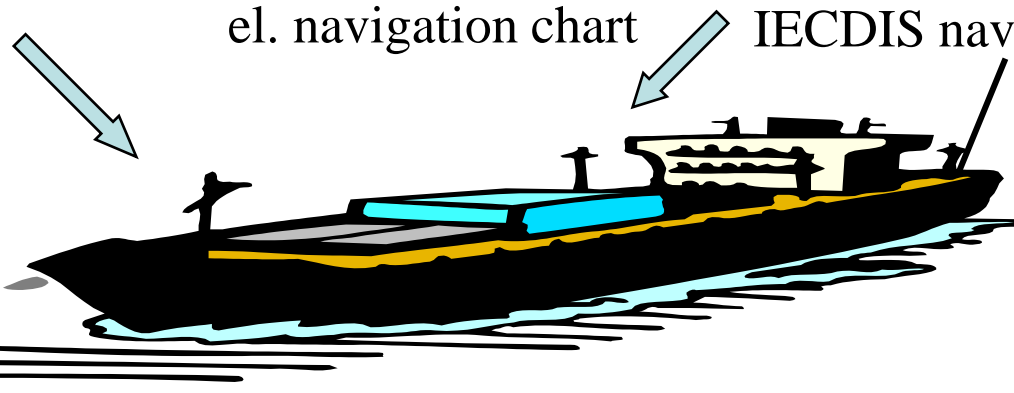


Inland AIS station



el. navigation chart

IECDIS navigation mode





Precondition II - Standards and regulation

- **VTT standard defines Inland AIS**
 - EU Directive 415/2007 (VTT standard)
 - CCNR VTT standard and Inland AIS test standard
 - UNECE Resolution 63 (VTT standard)
- **Inland AIS shipborne mobile station**
 - Type approved Inland AIS stations
 - Specialised firms for installation and testing
 - Supporting program for Inland AIS equipment
 - Operational and technical guidelines for the use of Inland AIS
- **Mandatory Carriage requirement**
 - Existing requirements at Danube (AU, SL, HU), Antwerp, NOK
 - Rhine from Dec 2014 (CCNR): Inland AIS and el. chart system
 - other waterways are expected to follow



Establishment of the shore-based AIS infrastructure

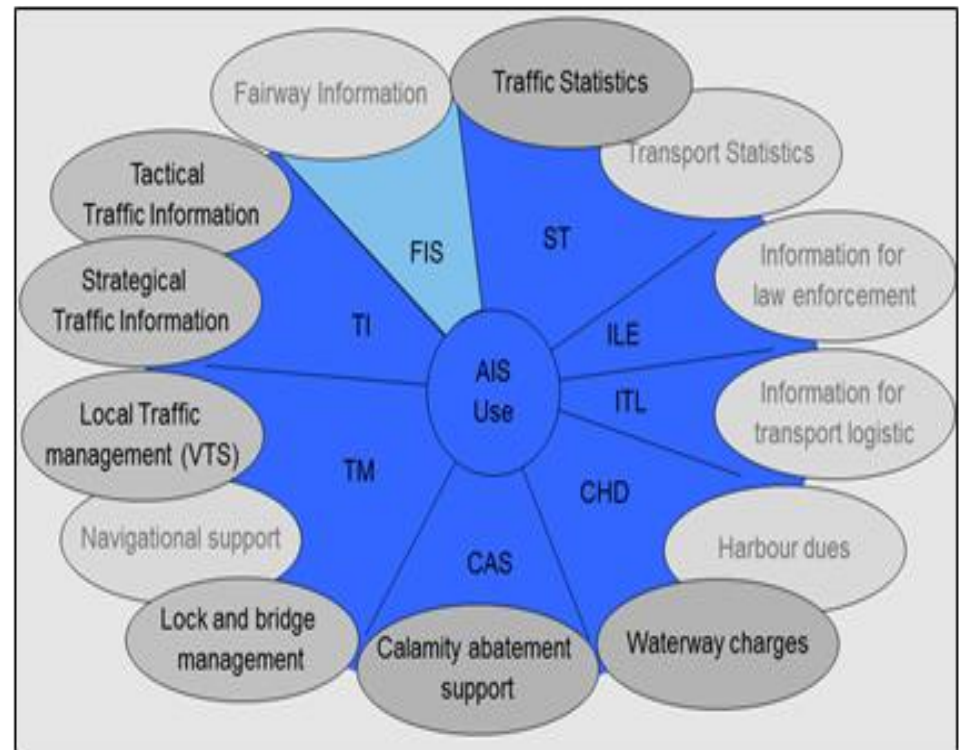
- Inland AIS
 - Inland AIS has been developed to support on - board navigation and shore - based RIS services in inland navigation
- Implementing Inland AIS
 - Guidelines and Recommendation for River Information Services identify Inland AIS as the RIS key technology for the tracking and tracing of inland navigation vessels
- The German AIS network
 - The German waterway and shipping agency is now in the process to expand their shore based AIS infrastructure towards the German main inland waterway network
- Use of Inland AIS in the German waterway network
 - The aim is to support the work of RIS centers, lock management, ship reporting, etc.



Support of River Information Services by Inland AIS in Germany

Set up to support the following services

- Traffic monitoring
- Information services
- Lock management
- Calamity abatement
- Waterway statistics
- Ship reporting
- Waterway charges
- Traffic Statistics





Inland AIS shore infrastructure in Germany - Roadmap

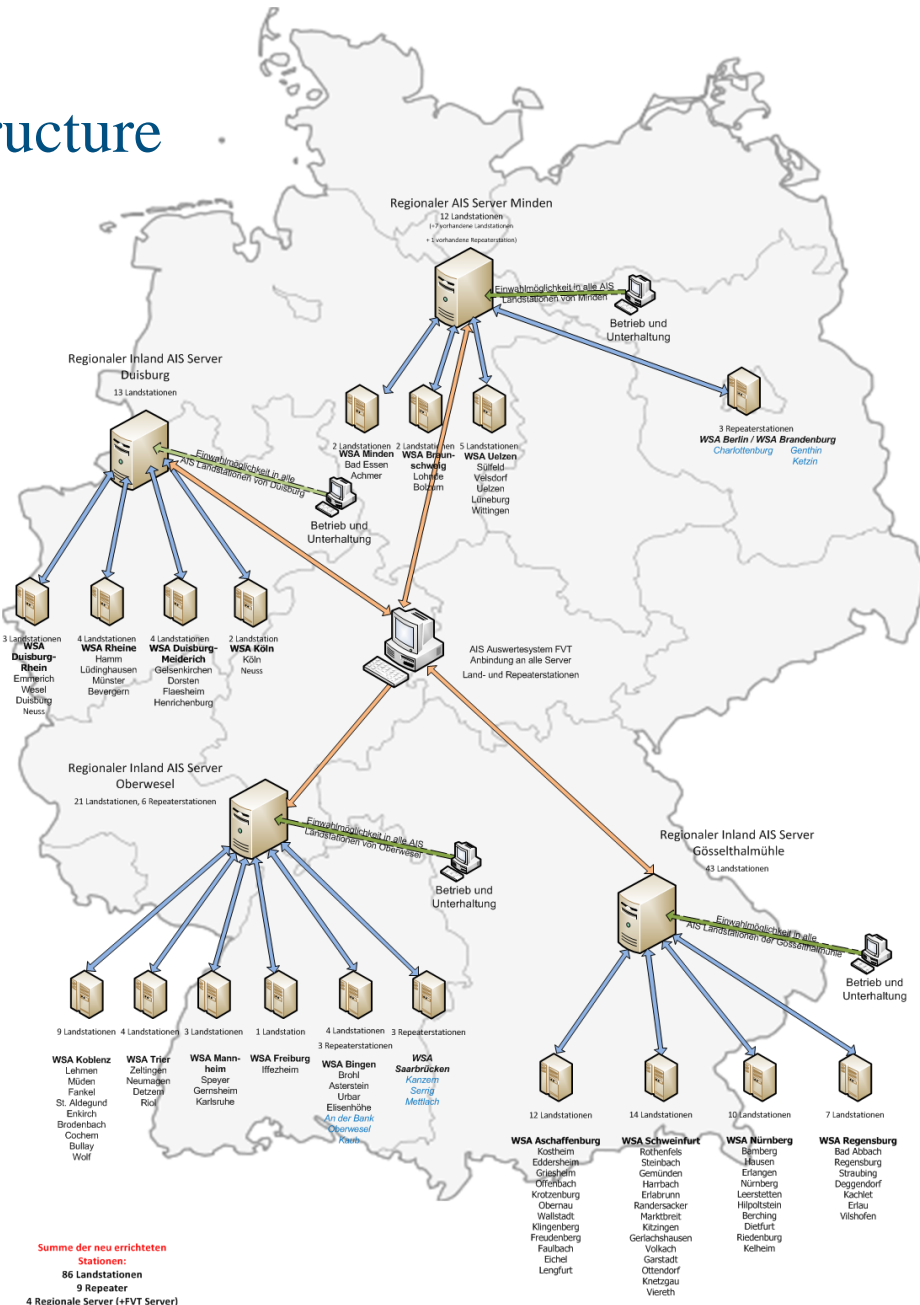
Los1: 86 AIS Shore stations and 9 Repeater stations

Los2: 4 Regional IAIS Server + 1 central technical evaluation



Inland AIS shore infrastructure

- Full AIS coverage of relevant inland waterways
- Use of existing VHF voice radio telephony infrastructure (NIF) antenna mast, shelter, energy supply, land line for data transfer
- 4 regional Inland AIS centers
 - **Middle** (Minden):
Weser, MLK, ESK,
 - **West** (Duisburg):
Rhine, Western Channels
 - **South-West** (Oberwesel):
Rhine, Mosel, Saar
 - **South** (Gösseltalmühle):
Main, MDK, Danube
- Central technical evaluation center

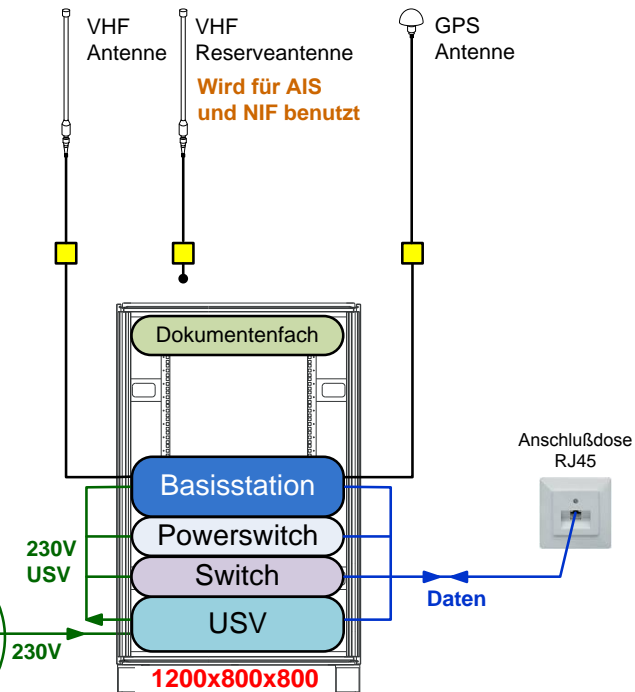
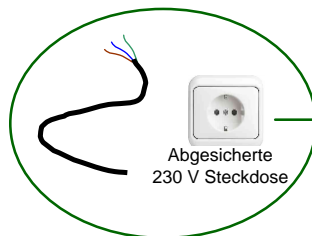




Set up Inland AIS shore station



VHF antenna



AIS shore station



GPS antenna

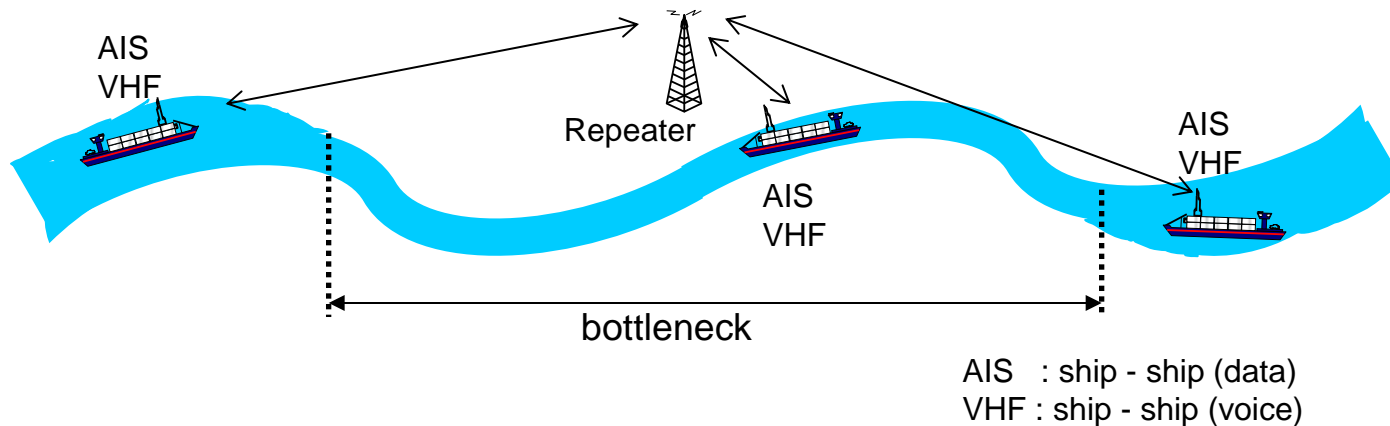


housing



AIS Repeater station

to enable ship to ship data
exchange in difficult radio propagation

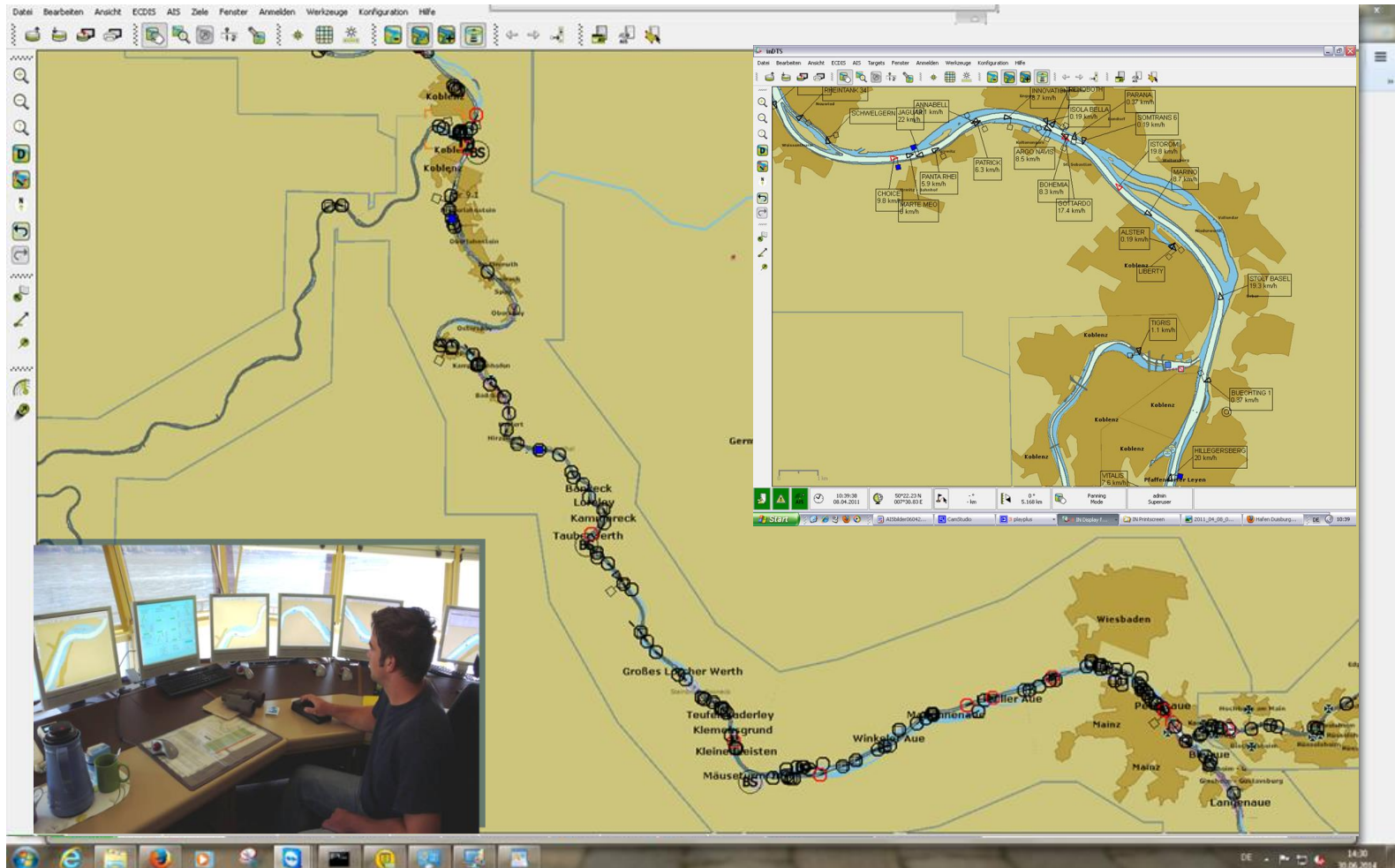


AIS Repeater ashore enable data exchange ship-ship also in case of difficult radio propagation. Extended Radio Coverage by re-transmission of the AIS VDL Messages received.

Inland AIS for communication „ship ↔ ship“ for navigation in bottlenecks („Datenfunk-Selbstwahrschau“)



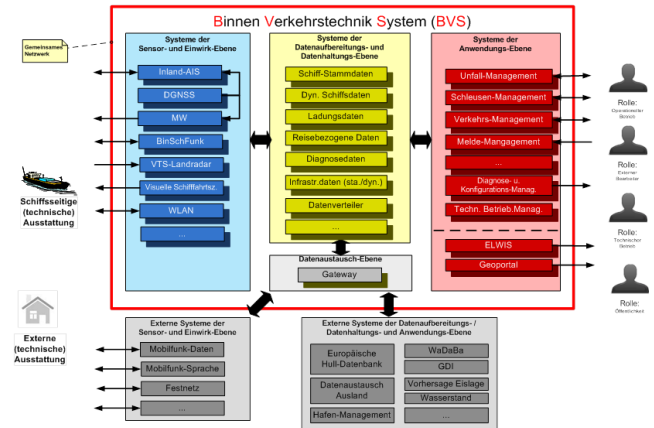
Data provided by Inland AIS shore infrastructure





The regional AIS Server is the interface of the AIS service to other Services to transfer data:

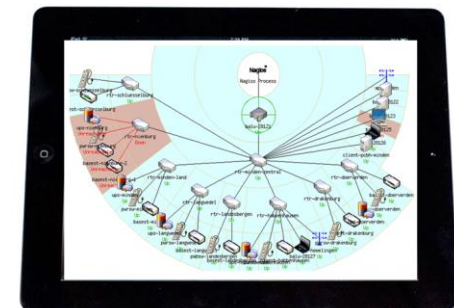
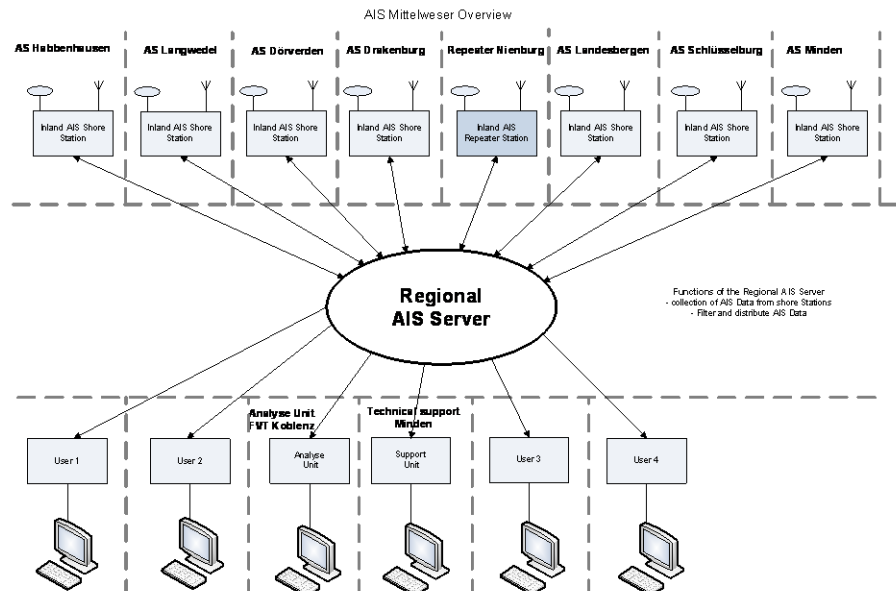
- received from vessels to connected RIS
- from connected RIS services via Inland AIS shore stations to
- + all vessels in a region or
- + addressed to single vessels



Service architecture



Regional AIS server



Display for maintenance personnel

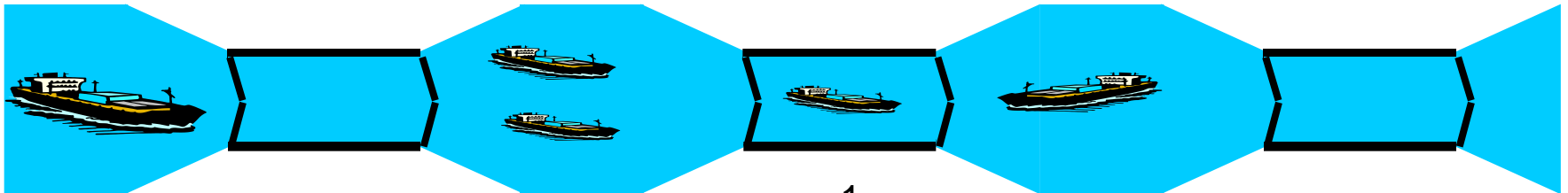
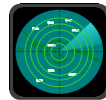


Lockmanagement





Why?

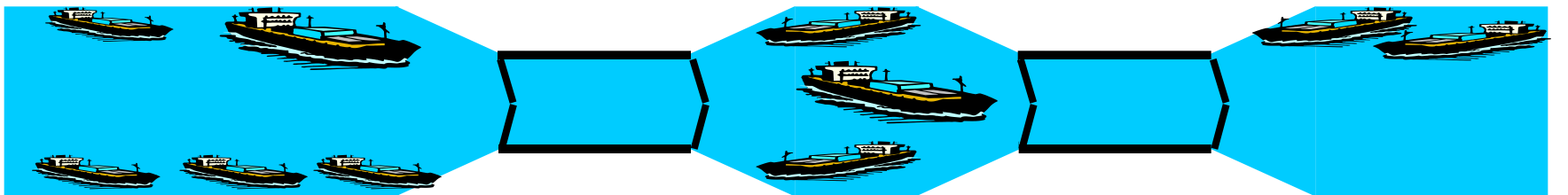


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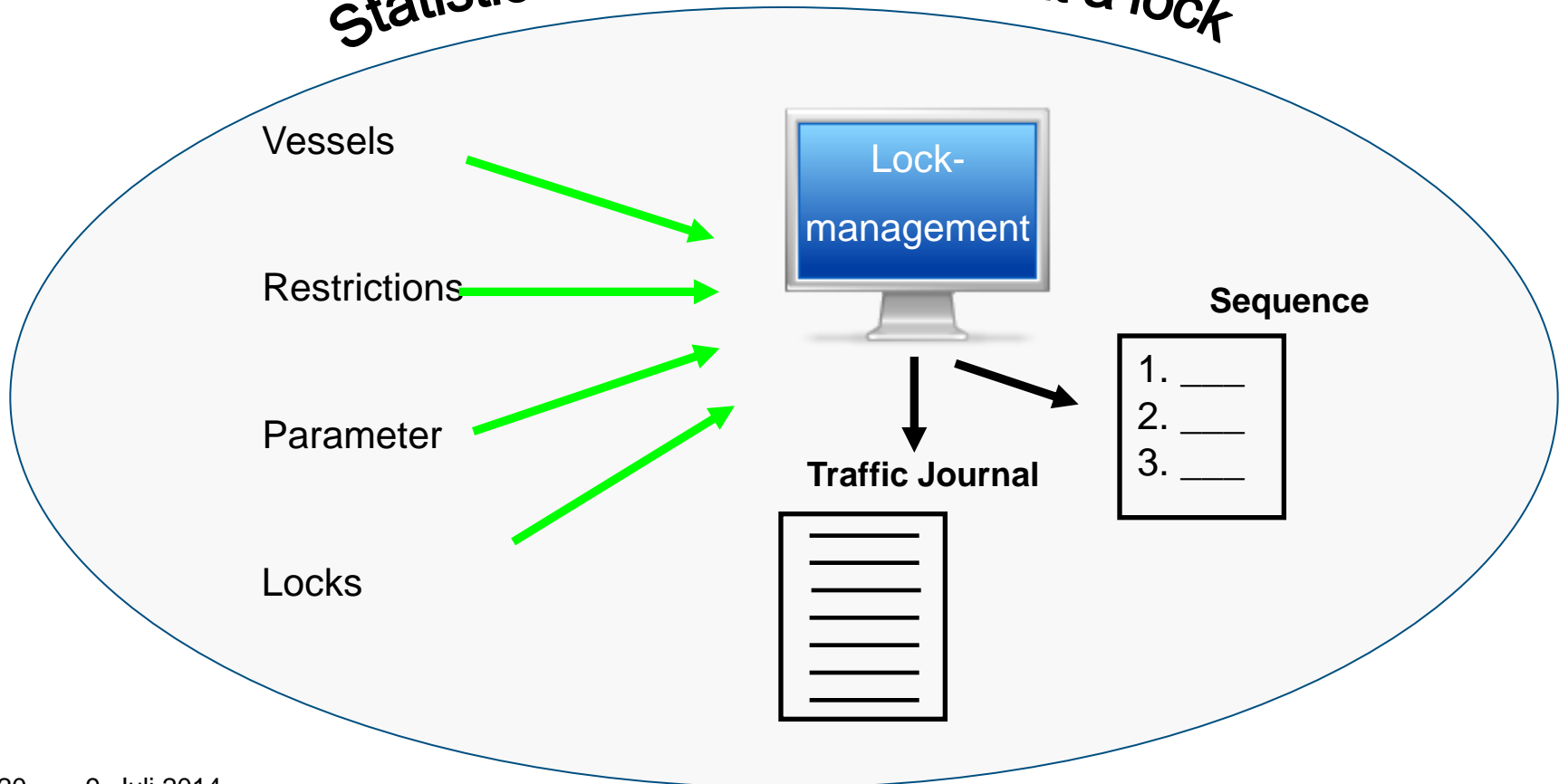
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Basic Idea

Statistical Process – Arrival at a lock





Basic Idea

Restrictions

Locks

Vessels



Suggestion for
sequence



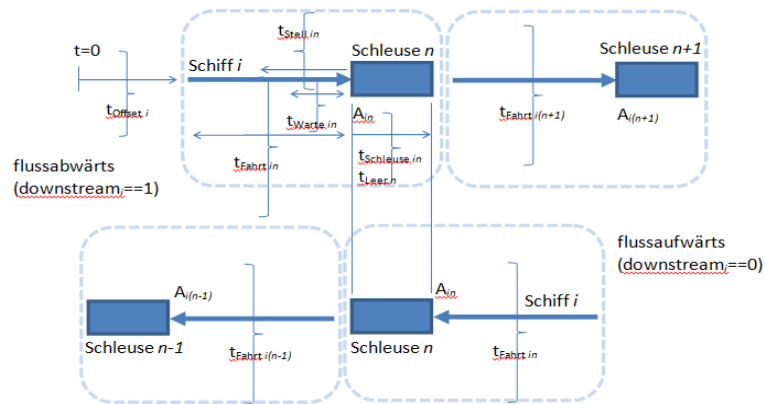
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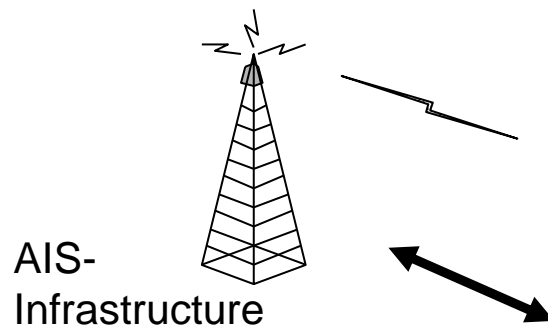
Assessment



„To Do“



Optimization



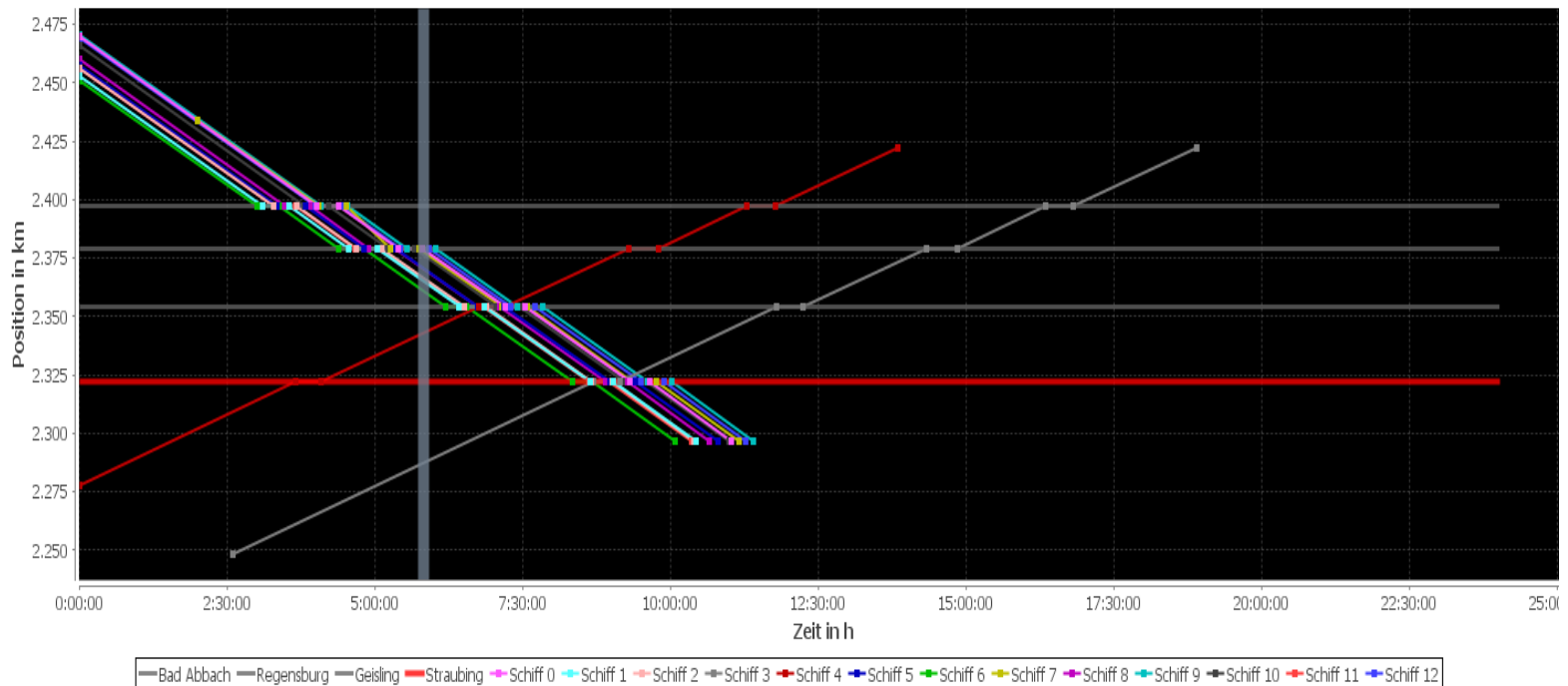
AIS-
Infrastructure



Traffic
Journal



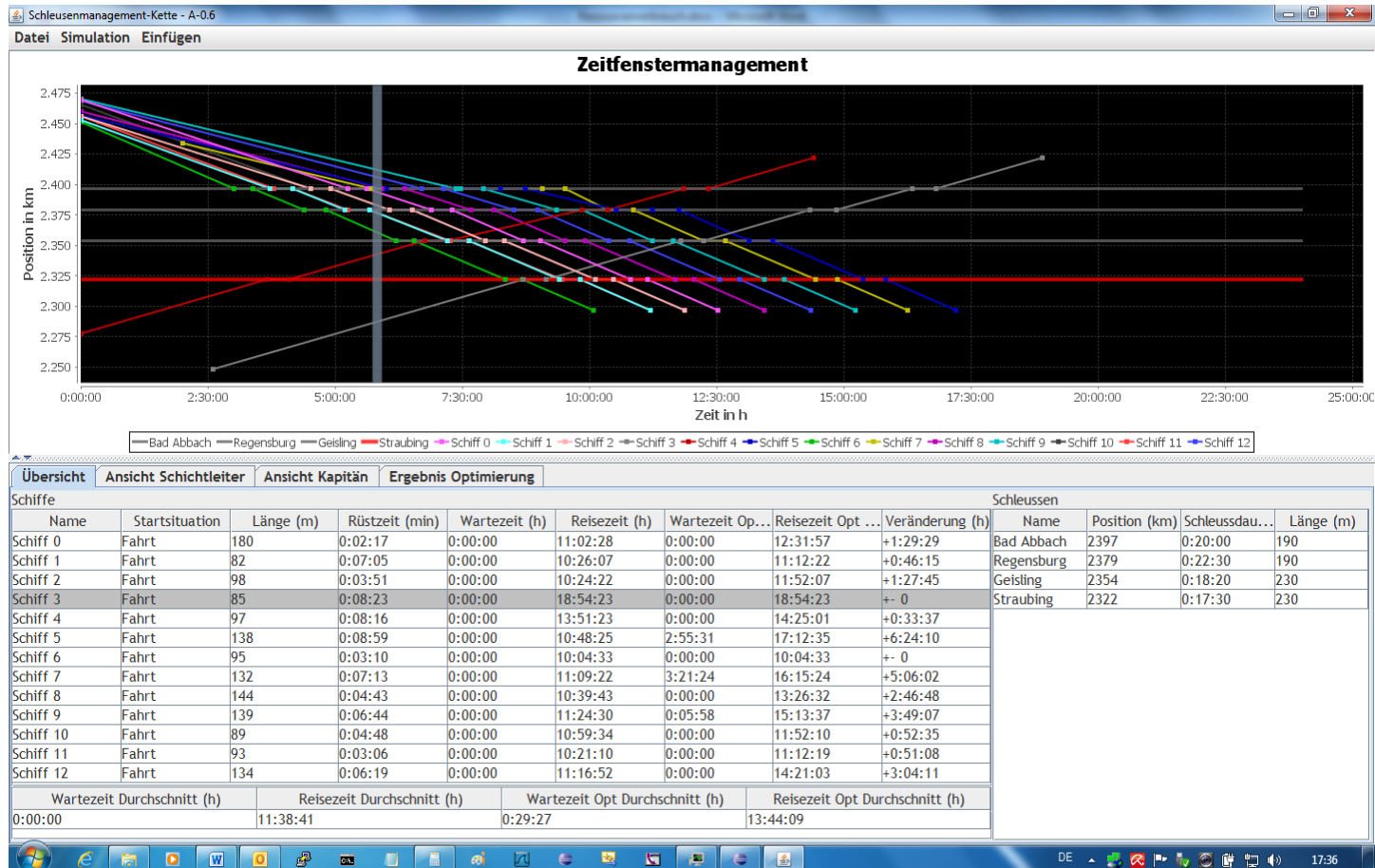
Optimization - Startposition



- 13 Vessels / 4 Locks
- Dense voyages
- Vessels and Locks can be configured separately



Optimization - solved





Current work

- Lock management project on the Danube
 - AIS-Infrastructure will be available latest October 2014
 - Tender for Software is ready and will be made public in July 2014
 - Software will be tested end 2014/early 2015
 - Evaluation of Lockmanagement will be done starting April 2015



Prospects for the future

- Obligation to install Inland AIS and Inland ECDIS on all German main waterways
 - Equipping all vessels with Inland AIS and Inland ECDIS
 - Use of Inland AIS in the VTS centres
 - Information exchange in an international network
 - Data management in connection with reference database
-
- We expect that Inland AIS will be used intensively to support and maintain the high standard on waterways in terms of safety and smooth operations – as well as with Inland ECDIS

The development, introduction and – in order to satisfy changing demands - updating of information systems such as the ones described above can make a major contribution towards guaranteeing efficient and safe navigation on inland waterways, now and in the future.

Thank you for your attention!

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