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OPERATION OF THE MARITIME SAFETY INFORMATION SYSTEMS

Summary. The marine safety systems, using European Safe Sea Net, help safe data sending. They make planning and guarding marine transport possible. Two systems work in Poland according to this system. They are the Maritime Safety Information Exchange System (SWIBŻ) and the Harbour and Cargo Information System (PHICS).

DZIAŁANIE MORSKICH SYSTEMÓW BEZPIECZEŃSTWA

Streszczenie. Systemy bezpieczeństwa morskiego, wykorzystując Europejską sieć wymiany informacji Safe Sea Net, pozwalają na bezpieczne przekazywanie danych. Umożliwiają właściwe planowanie i nadzór nad transportem morskim. W Polsce w ramach tego systemu pracują dwa systemy: System Wymiany Informacji Bezpieczeństwa Żeglugi (SWIBŻ) i System Informacji o Portach i Ładunkach PHICS.

1. INTRODUCTION

The Maritime Safety Information Exchange Systems uses the electronic systems by maritime administrations of the European Union Members and cooperative institutions for vessel traffic monitoring and automatic exchange information about current navigation situation on EU waters, early warning potential danger and to support rescue and crisis actions on ship and harbour protection.

The main aim of the Maritime Safety Information Exchange Systems is collecting, exchanging and using information for safety and protection of sailing ship traffic, monitoring improvement.

These systems consist of information in the range: ship traffic monitoring, danger and pollution cargoes and passengers sea; sailing safety and protection; increasing reacting ability in dangerous situations; ships and port objects protection; life rescue on sea and marine environment protection.

2. SAFE SEA NET

The European Union for Safe Sea Net programme realization, Member Countries are oblige to create national centres (NCA) which is responsible for data exchange on government level and supervises and coordinates local administration centres (LCA) work. This program uses Internet or Trans European net TESTA II. Safe Sea Net system is shown on Fig.1.
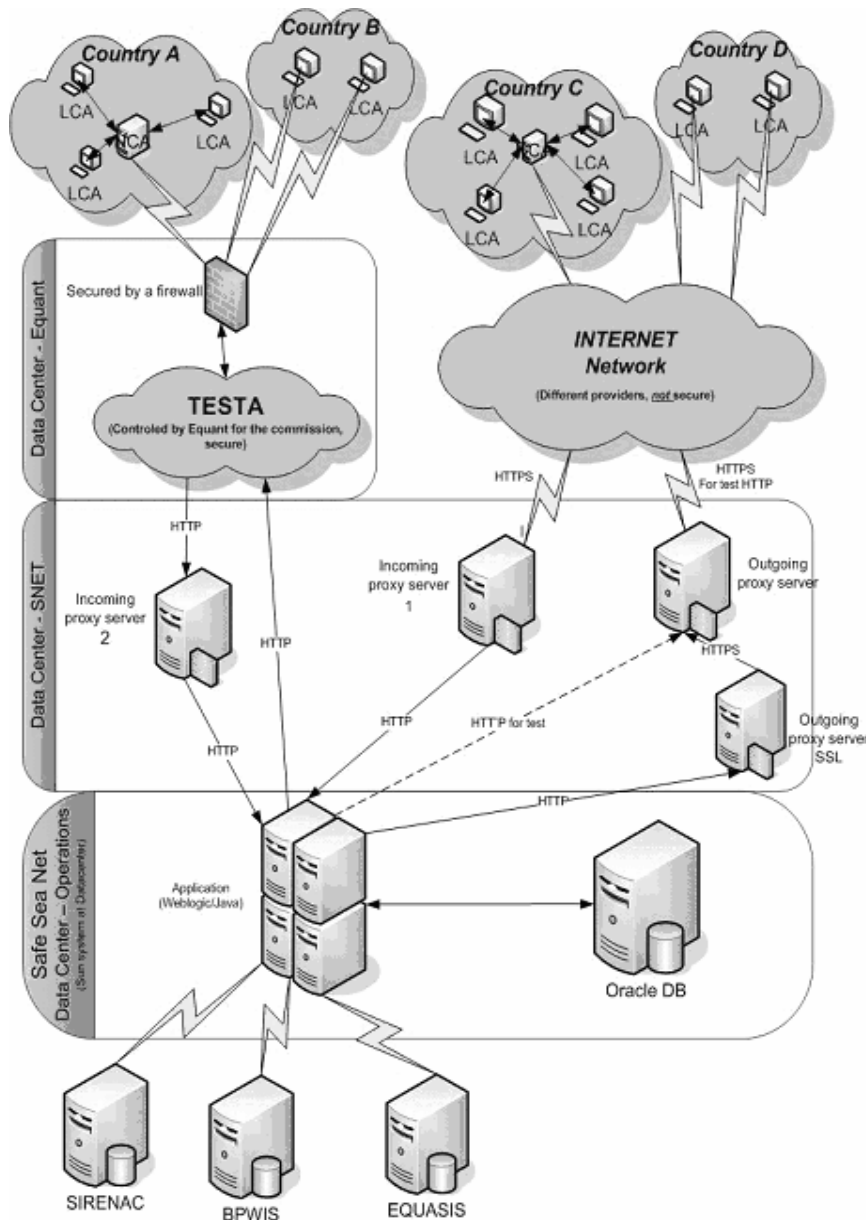

Fig. 1. Structure of SafeSeaNet system [4]
Rys. 1. Struktura systemu SafeSeaNet [4]

The Government is responsible for safety Internet work in its country. TESTA II gives connection net between the European Union administration and uses the following service:
1) PKICUG
   Service saveguard information by authorization. In this service information is selected for users depending on their level of competence. Confidential data sending is secured by Secure Socket Loyer (SSL) and protocol HTTP (Hypertext Transfer Protocol).

2) CIRCA
    Service control and order data for localization and quality information.
3) TESTA
    Service consists of:
    − European domena,
    − Local domenas,
    − Euro gate – structure connect local and European domenas and assures them technical
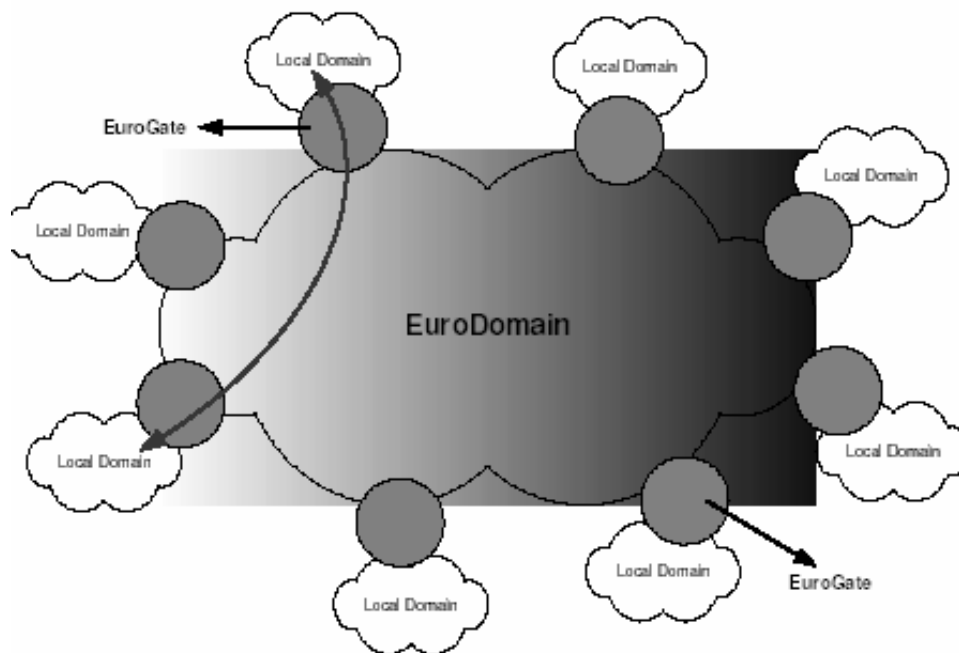   independence.

Fig. 2. Structure of TESTA II net [2]
Rys. 2. Struktura sieci TESTA II [2]

On Fig.2 is shown TESTA II structure net.
    European Safety Agency supervises Safe Sea Net from Oct 2004 and introduces system
application made by the Belgian company Getronics.
    The user always can obtain access to SIRENAC, BPWIS or EQUASIS data base service.
Enquiries from a ship will automatically connects with Safe Sea Net system and data from the base is
shown on its screen. Sample of these data are shown on Fig.3.

Fig. 3. Data presentation from EQUASIS data base [5]
Rys. 3. Prezentacja danych z bazy danych EQUASIS [5]

The information about ship obtains:
- Port notification;
- MRS notification;
- HAZMAT notification;
- Secure notification.

The system presents SITREP, POLREP reports from ships and lost and found containers. In this net HAZMAT and PASSENGER systems works too. In all systems the WORD formats is used.

3. MARITIME SAFETY INFORMATION SYSTEM ON POLISH WATERS

In SafeSea Net in Poland Maritime Safety System has worked since Jan 2004.

The Maritime Safety Information Exchange System (SWIBŻ) is the electronic system used by maritime administration and cooperative institutions for vessel traffic monitoring and automatic exchange information about current navigation situation in Polish marine areas, early warning about potential danger, to support rescue and crisis actions on ship and harbour protection.

The main aim of the Maritime Safety Information Exchange System is collecting, exchange and using information for safety and the increasing of sailing ship, traffic monitoring.

This system consists of information in the range: ship traffic monitoring; danger and polluting cargoes and passengers transported by sea; sailing safety and protection; increasing reacting ability in dangerous situations; ship and port objects protection; life rescue on sea and marine environment protection.
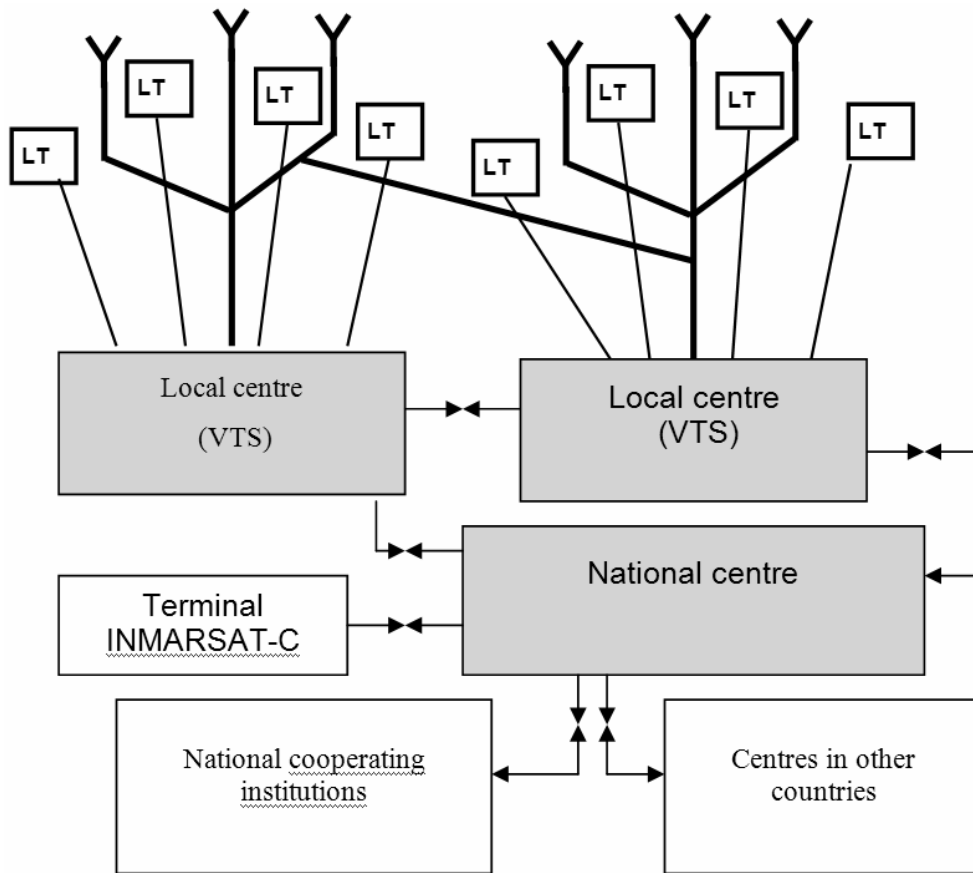
Fig. 4. Maritime Safety Information Exchange System. Local telemetric net (LT – local terminal) [2]
Rys. 4. System Wymiany Informacji Bezpieczeństwa Żeglugi. Lokalna sieć telemetryczna (LT – terminal lokalny) [2]

The structure of local net is presented on Fig.4. Local centres exchange data between each other and hold link with the national centre. The national centre has connections with other countries and national cooperating institutions.
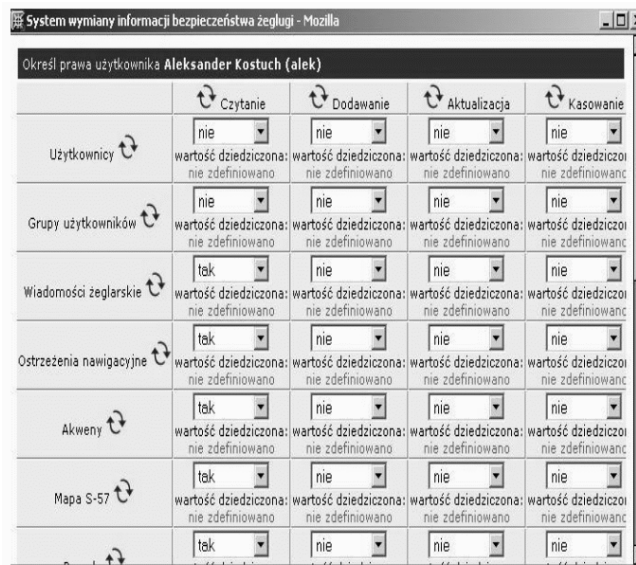

Fig. 5. User's window [5]
Rys. 5. Okno użytkownika [5]

The user's window is shown on Fig.5. In this window the user dedicates the kind of information which he has to receive.

Data from ship are collected in Maritime Safety Information Exchange System (SWIBŻ) from AIS (Automatic Identification System) used land base station net. This net was built according to European Union Directive 2002/59/EC.

3.1. AIS NET ON POLISH WATER

Ships participating in Automatic Identification System send automatically information about their name, numbers and parameters, movement vector, voyage and cargo. For this purpose two VHF channels are used by VHF radiotelephone. Its gives communication range up to 30 Nm. On the shore the maritime administration build a base station net. The net collects information from ships and sends it to VTS centers. In Poland the centres are located in VTS Zatoka (Gdynia) and VTMS Szczecin – Świnoujście. Information from AIS increases safety of navigation because the operator VTS receives higher accuracy data and ship movement discipline increases because the ship is looked after by this service. System ECDIS (Electronic Chart Display and Information System) with S 52 map standard is used for presentation data from AIS and one sample is presented on Fig.6.
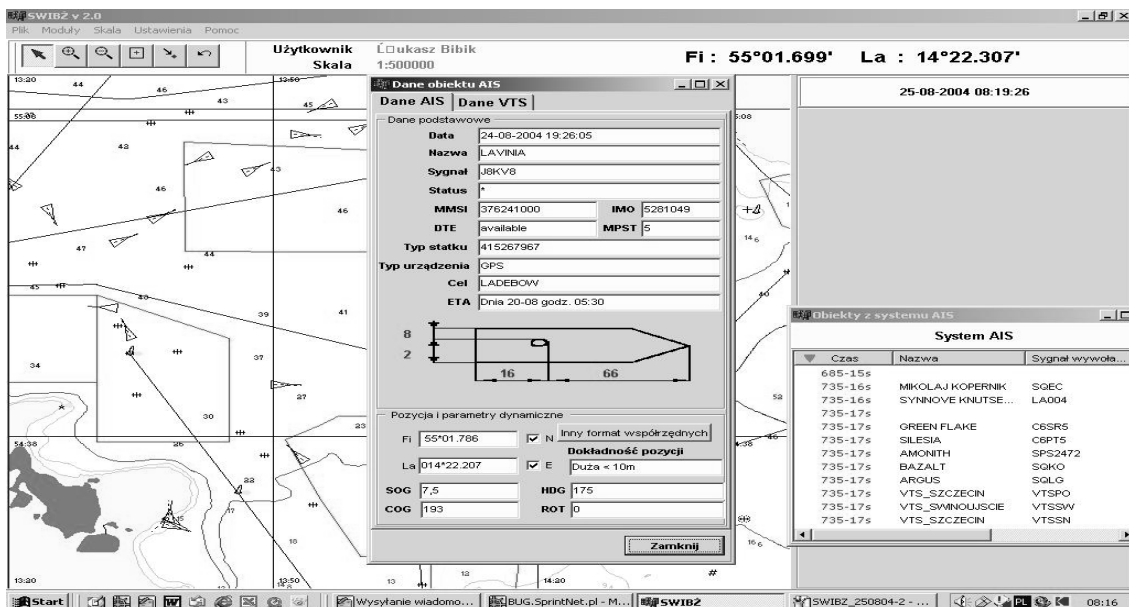

Fig. 6. AIS data on the map [5]
Rys. 6. Dane AIS na mapie [5]

3.2. POLISH HARBOURS INFORMATION AND CONTROL SYSTEM

In Polish Marine Safety System PHICS subsystem works. PHICS consists of 5 components:
1) Preliminary declaration
    This document is sent before the visit in the port by ships greater than 150 T and all passenger ships. Document including general ship information, vessel certificate and other information is sent by ship or agent. The system works with Lloyd's Register's Shipping data base.
2) HAZMAT document
     Data base abort hazardous and pollutant cargoes carried by ships.
3) PAS-REG document
    Passenger lists are collected here.
4) PSC (Port State Control)
5) STCW (Standards of Training, Cretification and Wachtkeeping for Seafarers)
    Data base about crew certificates according to STCW requirement are collected by Maritime Office.

4. CONCLUSIONS

PHICS system is hard to be used, because protecting of this system requires manual introduction of all documents and it is not possible to change anything. If somebody makes a mistake, they have to start with the list again.

The Safe Sea Net just works for the second year and from this moment safety increases in marine navigation.

AIS system will be increased for example by base station installation on Petrobaltic Beta Platform. In this case access to ship data on the Baltic Sea will be active.

To summarize, the given information evidently increases possibilities of VTS services and improves sailing safety.

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