



SAFEMED III

Atelier consacré aux systèmes d'information et au suivi du trafic maritime (VTMIS)

MOROCCAN AIS SYSTEM

- MERCHANT MARINE DIRECTORATE -

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Plan

- Why the Morocco implemented AIS System?
- Distribution of the AIS stations
- AIS Coverage
- AIS system Architecture
- AIS Server Redundancy
- Equipement of remote station
- AIS Views
- AIS Monitoring by Tangier VTS





Why the Morocco implemented AIS System?

- Along its Mediterranean and Atlantic coasts Moroccan maritime area is experiencing intense maritime activity,
- Several types of ships pass through Moroccan waters in order to go to one of its ports or to take a sea route to other destinations (Europe, Africa ...).



- Based on this observation, it belongs to Morocco as a coastal State to know and follow the maritime traffic along its coasts.



Why Morocco implemented AIS System?

Morocco has implemented an AIS system in order :

- ☐ To collect and compile the information collected by the AIS stations,
- ☐ To identify areas of dense maritime traffic,
- ☐ To conduct a study to identify (s) area (s) at risk,
- ☐ To take appropriate measures to prevent accidents,
- ☐ To take measures related to the safety of maritime navigation required in high-risk areas, such as the establishment of zones of separation of traffic (if is necessary).
- ☐ And to ensure good coverage of the waters under Moroccan sovereignty or jurisdiction.



Distribution of the AIS stations



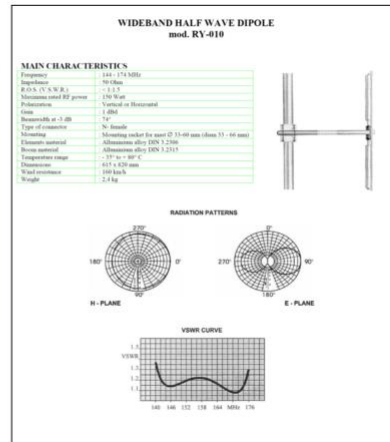
Distribution of the AIS stations

DMM AIS Network - Remote Site MMSI and UniqueID

ID	NAME	MMSI	UniqueID Serial No.
1	DMM - Nador	2424144	DMM4144
2	DMM - Mohammedia	2424145	DMM4145
3	DMM - Casablanca	2424146	DMM4146
4	DMM - Jorf Lasfar	2424147	DMM4147
5	DMM - Safi	2424148	DMM4148
6	DMM - Agadir	2424149	DMM4149
7	Phares de Cap de Sidi Abed - Al Hoceima	2424150	DMM4150
8	Cap Spartel - Tanger	2424151	DMM4151
9	Cap Boujdor - Boujdor	2424152	DMM4152
10	Phare de la Pointe Nador - Larache	2424153	DMM4153
11	Phare de Mehdiya - Kenitra	2424154	DMM4154
12	Capitaineries des ports - M'diq	2424155	DMM4155
13	Capitaineries des ports - Tarfaya	2424156	DMM4156
14	Capitaineries des ports - Dakhla	2424157	DMM4157

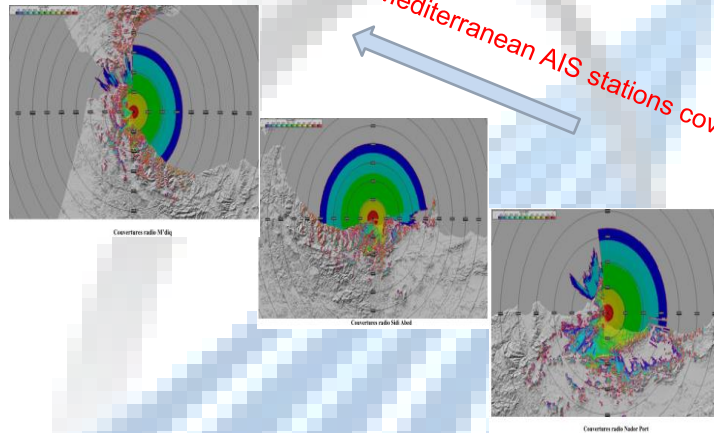
AIS Coverage

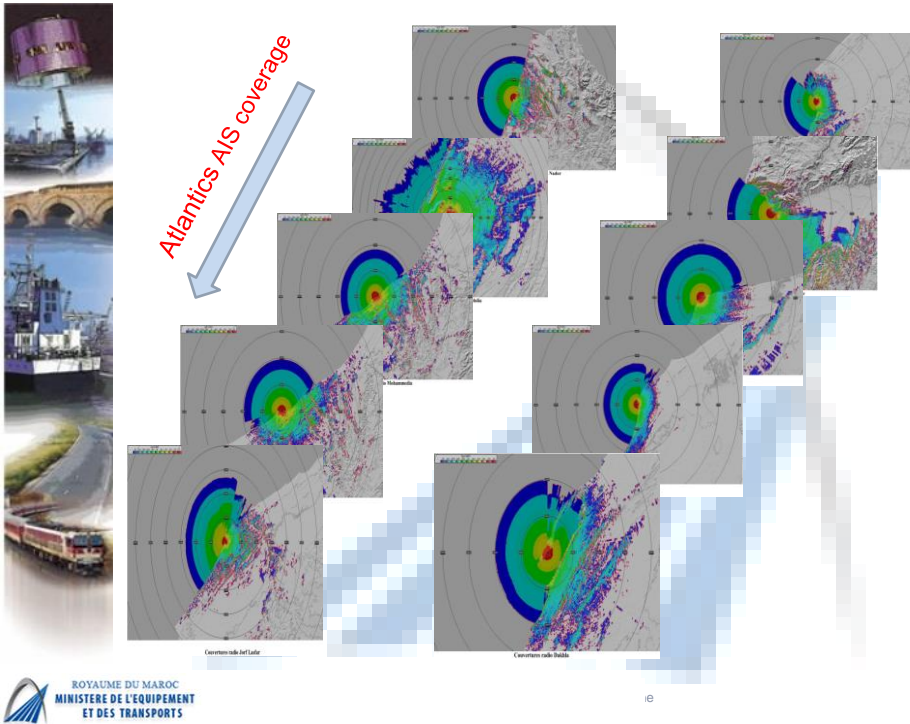
VHF Antenna



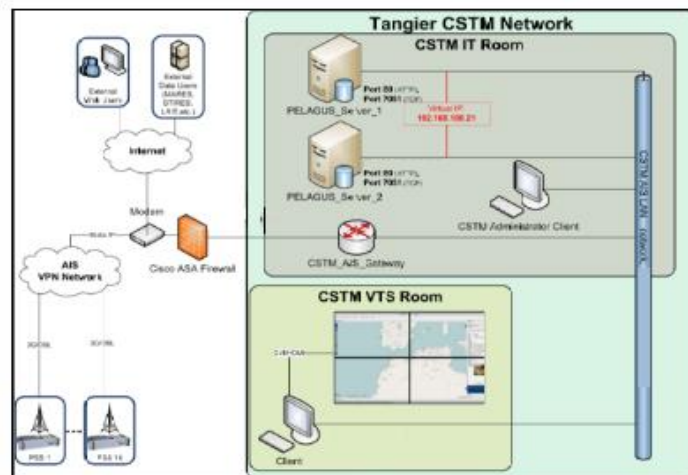
AIS Coverage

Mediterranean AIS stations coverage





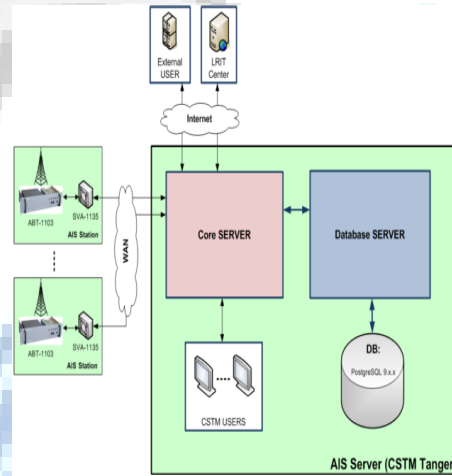
System Architecture



System Architecture

WUI-GIS - Main Sections & Functionalities:

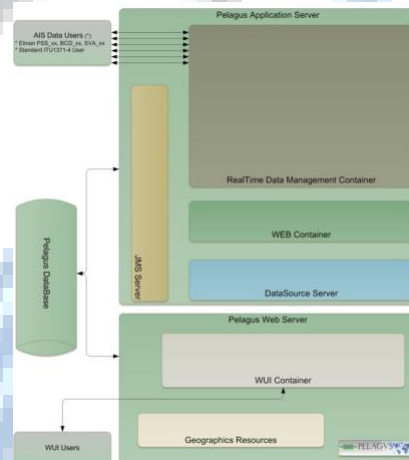
- ❖ **View:** AIS Targets, position, information, filtering area, measuring, PSS coverage.
- ❖ **Search & Count targets:** upon using specific criteria (area\ time – intervalle) , export.
- ❖ **Compute:** Static measures (Distance, Bearing), Kinematics measures (CPA, TCPA, DCA).
- ❖ **Configure:** operationnal Preferences , Refresh interval
- ❖ **Manage AIS Messages:** Send Safety Related Messages, Binary Messages. Schedule Broadcast transmissions



System Architecture

Server AIS- Software blocks diagram:

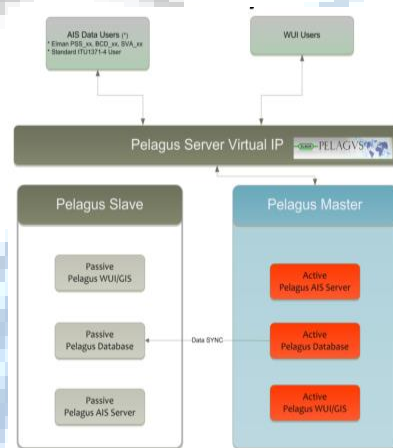
- Pelagus Application Server Data Management
- Pelagus Database – Data Storage
- Pelagus Web Server – Data presentation



AIS Server Redundancy

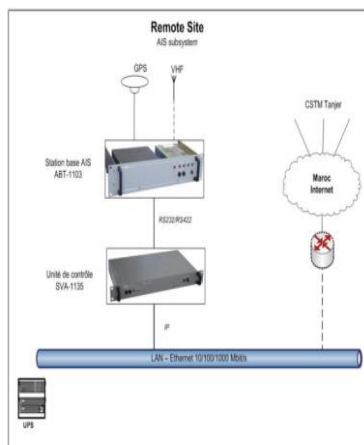
AIS Server Redundancy:

- ❖ AIS server configured in high availability configuration, using a Master/slave mechanism
- ❖ From the external resources (AIS Base Station and/or Web users) the Active server is reachable from the Virtual IP.
- ❖ Automatical transfer of the old stored data of the Slave to the Master server at his reconnection.



Equipement of Remote station

Remote Site



Hardware - PSS rack

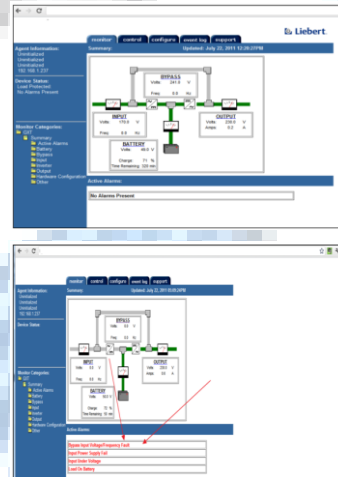


19" Rack Configuration	
Device Description	Model
AIS Base Station (warship version)	ABT-1103
Embedded AIS server	SVA-1135
Liébert UPS	GXT3-1000RT230
Battery pack for the UPS	GXT3-40V8ATT
Router Device	CISCO 8815
VHF Lightning Protection H&S	3401.17 A
GPS Lightning Protection H&S	3402.27.001
Internal Switchgear	

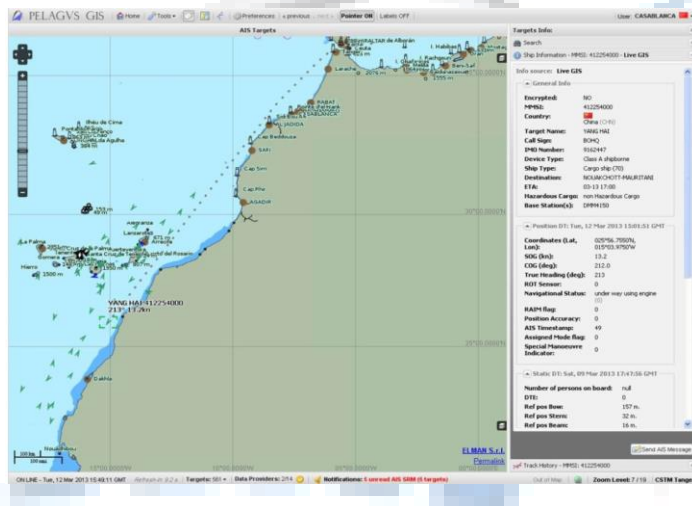


Equipement of Remote station

- ❑ UPS Web Interface
- ❑ UPS Status check
- ❑ UPS Monitoring IP Addresses
- ❑ UPS on alarme



AIS Views

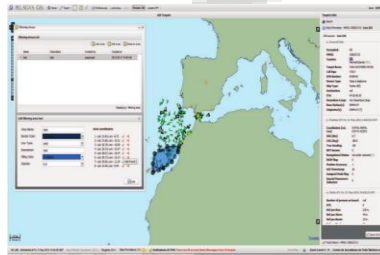




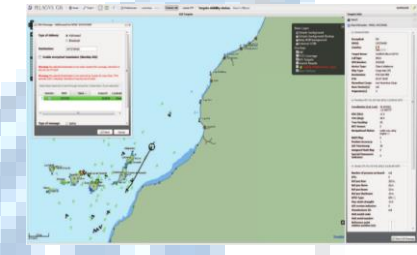
Measuring Distance



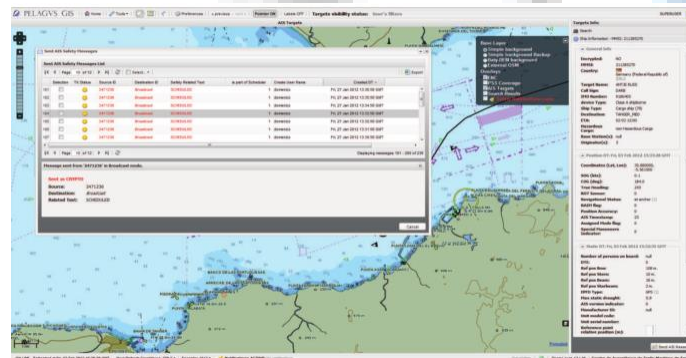
Measuring Area



Filtering Area

Sending AIS Messages
(addressed messages, warning infos....)

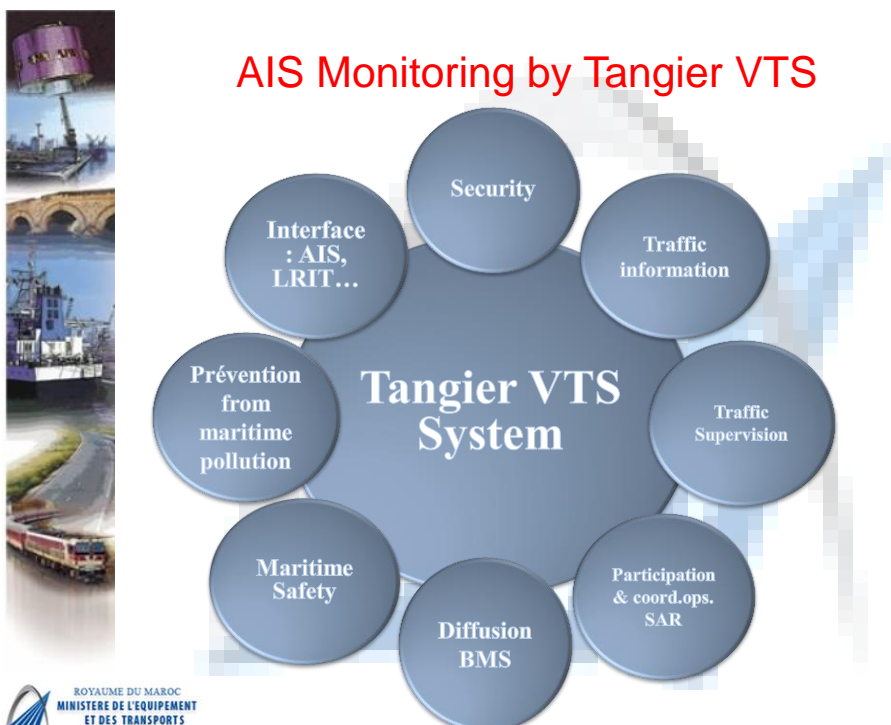
AIS Views



Received AIS messages



AIS Monitoring by Tanger VTS





Thank you.