

BlueMassMed

Thematic Report n.4

**An Experimental demarche
in maritime information
exchange**

	Name	Company
Author:		
Contributors:		

DOCUMENT STATUS SHEET

ISSUE	DATE	CHANGE DESCRIPTION	AUTHOR
1.1	30-06-2012	Initial Version	



TABLE OF CONTENTS

ACRONYMS LIST 5

REFERENCES 5

1 INTRODUCTION 7

2 EXPERIMENTAL DEMONSTRATION 8

 2.1 OPERATIONAL PREPARATION 8

 2.2 SCENARIOS FINE TUNING AND VALIDATION 11

 2.3 CONTINUOUS EXPERIMENTATION..... 13

3 OPERATIONAL ASSESSMENT 15

 3.1 OPERATIONAL ASSESSMENT OF THE SBCMP 15

 3.2 OPERATIONAL ASSESSMENT OF THE SCENARIOS..... 20

4 VIP DEMO SCENARIO EXECUTION 26

5 CONCLUSIONS 28

- ANNEX 1.1 – User Data Table for the Experimentation**
- ANNEX 1.2 – UWG Scenarios Implementation (Storyboard, Data Injections)**
- ANNEX 2 – Scenarios Animation**
- ANNEX 3 – Operational Assessment of the SBCMP (Scenario Zero)**
- ANNEX 4 – User Manual of BMM Web Portal**
- ANNEX 5 – Recordings from the execution of the scenarios (use cases)**
- ANNEX 6 – Recordings from the VIP Demo Scenario execution**

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



ACRONYMS LIST

AIS	Automatic Identification System
BMM	Blue Maritime Surveillance System for the Mediterranean sea(BlueMaSSMed)
CCTP	Cahier des Clauses Techniques Particulières
COP	Common Operational Picture
DG MARE	Directorate-General for Maritime Affairs and Fisheries
EC	European Commission
EMSN	European Maritime Surveillance Network
EU	European Union
GIS	Geographic Information System
LRIT	Long-Range Identification and Tracking
MSS	Maritime Surveillance Systems
NAF	NATO Architecture Framework
PN	Primary Node
QoS	Quality of Service
SBCMP	Shared Basic Common Maritime Picture
SN	Secondary Node
SOA	Service Oriented Architecture
SOP	Standard Operating Procedures
TCP/IP	Transmission Control Protocol/Internet Protocol
VMS	Vessel Maritime System
WAN	Wide Area Network
XMSN	eXperimental Maritime Surveillance Network

REFERENCES

- A. CAHIER DES CLAUSES TECHNIQUES PARTICULIERES (CCTP). 09th August, 2010
- B. BluemassMed System View. 16th May, 2011

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



internal cooperation) and cross-border (and cross-users communities), with the aim of added value to participants by running realistic and pertinent scenarios,

- test and improve the requirements for the best practices in sharing and exchanging data and services during an in-depth demonstration, based on realistic scenarios which focus on activities carried out by the partners in their mission,
- establish and maintain a SBCMP for a sufficient period of time.
- culminate in the process of identifying and solving obstacles,
- disseminate the lessons learnt, estimate the investment and life cycle costs.

In order to conduct an adequate demonstration, the operational and technical requirements have been streamlined appropriately, considering the purposes and the available time for this demonstration to occur.

Since each member state involved in the demonstration will develop its own node, the requirements originally specified have been adjusted and augmented to every context, as necessary, to support a proper and complete procurement process.

2 EXPERIMENTAL DEMONSTRATION

The experimental demonstration phase has been divided into a “continuous experimental demonstration phase” and a “VID Demo” phase, dedicated to the preparation, execution and dissemination of the VIP demo event.

The continuous experimental demonstration phase was organised in four different steps:

1. Operational preparation, dedicated to the connection, familiarisation and fine tuning of the operational nodes interaction with the SBCMP and the BMM common services
2. Initial Operational Capability, devoted to the execution and fine tuning of the demonstration scenarios
3. Medium Operational Capability, devoted to the selection and optimisation of the VIP demo scenario
4. Final Operational Capability, devoted to the execution of the VIP demo scenario and the preparation of the VIP Demo Events.

2.1 OPERATIONAL PREPARATION

The following technical facilities have been put in place in order to ensure a proper reporting of the experimental demonstration sessions:

- A “scenario master” workstation able to reproduce the evolution of the scenarios events and injections, in order to give the reference time and “behind the stage” orders to all participating nodes
- An auxiliary “super-user” access to all web portals with credentials to get significant screenshots of the established SBCMP (approx. 2-3 per day) as well as the log of the exchanged services and notifications
- A database to store the results of validation questionnaires compiled by users involved in the experimental demonstration trials

	SN Marit Gendarm	Toulon	Ministry of Defence, Gendarmerie
	SN Inter-ministerial	Paris	Interministerial
	SN Customs	Paris	Customs
	SN Customs	Marseille	Customs
	SN Interior	Rennes	Interior
	SN CNES	Toulouse	CNES
	SN Maritime Affairs	La Garde	Maritime Affairs
GR	Coast Guard	Piraeus	CoastGuard
	PN Inter-ministerial	Roma	Interministerial
	SN Immigration	Roma	Ministry of Interior
	SN Drug	Roma	Ministry of Interior
	SN Finance	Roma	Guardia di Finanza
IT	SN Customs	Roma	Customs
	SN Defence	Roma	Navy
	SN Transport	Roma	Ministry of Transport
	SN Coast Guard	Roma	CoastGuard
	SN Environment	Roma	Ministry of Environment
MT	SN Defence	Valetta	Ministry of Defence
SP	PN Defence	Cartagena	Navy
	SN SASEMAR	Madrid	Maritime Affairs, Sasemar
	SN DAVA	Madrid	Customs

	SN SEGEPESCA	Madrid	Fisheries
	PN Interior	Madrid	Ministry of Interior (Guardia Civil)
	PN Defence	Lisboa	Navy
	Interior	Lisboa	Ministry of Interior (Guardia Nacional Republicana)
	SN IPTM		Maritime Affairs
	SN FAP		Air Force
PT	SN SEF		Border Police
	SN DGAEIC		Customs
	SN ASAE		Customs
	SN PJ		Criminal Police
	SN SSI		Internal Security
	SN EMAM	Lisboa	Interministerial

For each operational node, a technical reference person has been established who has been responsible of:

- setting up an internet connection of at least 2 Mb/s and a suitable workstation with a web browser
- getting user credentials from the PN Technical Manager of the respective national PN
- accessing the web portal and execute / coordinate the training and experimental sessions according to the content of the subsequent sections.

The full User Table of the BlueMassMed experimentation phase is reported in Annex 1.1.

2.2 SCENARIOS FINE TUNING AND VALIDATION

The experimental demonstration has been based on realistic scenarios, one “day to day life” (Scenario zero, utilised during the continuous experimental demonstration period identified) and 3 simulated scenarios to provide opportunities enough to test all the services.

Those Main events at sea have been run on top of the actual Shared Basic Common Maritime Picture, simultaneously or consequently (depending on the cases) to conform the overall scenario.

Each of the Main Events (Vignettes) has an associated “list of injections” including the details of all the Data and Services to be exchanged (Date and time, data or service requested, consumer/requesting partner, producer/providing partner).

Each primary and secondary nodes had the complete “list of injections” for the selected

scenarios.

The list of data and services to be exchanged has been elaborated taking into account the limitations imposed to the different PNs according to the achieved level of integration of the SBCMP procedure and Common Services.

The scenario (SBCMP plus the “Main Events” and the associated “Lists of Injections”) comply with the following conditions:

- related to all the activities envisaged within the responsibility of the different partners.
- involving all the Primary Nodes, and the Secondary ones as much as possible.
- providing room enough to test the BMM Common Services implemented in the XMSN (from the Specifications Document) and also the Information Exchange Requirements (from the BMM Operational View 2.0).

Nevertheless, the list of injections is to be considered as the minimum to be exchanged during the demonstration.

The final version of the selected scenarios are given in annex 1.2, including:

- the storyboard description of the three selected scenarios
- the general injections list for the three scenarios
- the simulated events list for the three scenarios

Moreover, in Annex 2, a dynamic view of the storyboard developed for each scenario implementation in terms of fake tracks and notifications / events is presented.

A complete handbook for the experimental demonstration has been provided to each Operational Node involved in the experimental demonstration. Such handbook (end user manual) has been composed of the following documents:

- 1- the BMM Demo Executive Plan with his annexes
- 2- the user manual of the Web Portal that the Operational Node will be expected to use during the experimental demonstration (prepared by PN Technical Managers)
- 3- the detailed injections list for that specific Operational Node and for all the scenarios (as taken from the general injections list reported in Annex 1.2)
- 4- the detailed event list for that specific Operational Node and for all the scenarios (as taken from the general event list reported in Annex 1.2)
- 5- the detailed list of reactions requested (questionnaire for reporting, as taken from the general requested reactions list reported in Annex 1.2)

In particular, the following aspects have to be stressed during the preparation of the experimental demonstration phases:

- **Familiarization of National Agencies Operators** with the BMM environment, in order to permit them to act an active role during the running of demonstration scenarios.
- **Implementation of BMM added value capabilities**, which will ensure the requested improvements with reference to performances of systems currently operating at national and sectorial level.
- **Identification of selling points in demonstration scenarios**, which will be tested

during the experimental demonstration trials and which the final demo event will be focussed on.

- **Implementation of a scenarios management environment**, which will, firstly, ensure the simulation of fakes tracks, events and those data required by demonstration scenarios and which will, secondly, allow an effective assessment of the BMM network behaviour in response to the running scenarios.

2.3 CONTINUOUS EXPERIMENTATION

Experimental demonstration trials have been structured in four different phases:

- **Operational familiarization:** The national members of the TECH and OPS networks have supervised the training of the End Users Operators in their respective fields (technical/procedure). At the end of this phase all personal involved in the experimental demonstration have been ready to efficiently interact with the BMM network.
- **Initial Operational Capability (Scenario 0 and events):** a 1 month period where successive experimental demonstrations slots have been organised and dedicated to specific purposes. This phase has been focussed on assessing the readiness of End Users Operators, performing minor refinements of scenarios and checking operational requirements with running scenarios. At the end of this phase scenarios have been tuned and selling points have been identified .
- **Medium operational capability:** running of VIP demo vignettes for internal assessment. During this phase, only VIP Demo vignettes have been played to analyse main achievements of the experimental demonstration with reference to the established validation criteria.
- **Final operational capability:** running of VIP demo vignettes for VIP Demo preparation and training for VIP Day. Installation, setting-up, integration and test of VIP Demo environment and VIP Demo dry run. Execution of the VIP Demo demonstration.

During the **operational familiarization phase** the following actions have been completed and reported by each User Reference Point:

- 1 Connect all available Agencies and Operational Nodes to the BMM network through the Web Portal of at least one Primary Node,
- 2 Identify technical and operational reference persons for each operational node
- 3 Perform User profiling for all available Users
- 4 Perform End-Users Training concerning the basic access and exploitation of the BMM web portals (SBCMP analysis, Common Services requests, Data Injection & Notification Tools)
- 5 Familiarization with the end-user role within the foreseen scenarios, and preparation of the envisaged injections / notifications at each User ops room

The operational familiarization phase has been considered closed for any operational node when:

- the Node is connected to at least one Web Portal, with a valid and profiled account

- a Technical and an operational reference persons are defined for the Node
- the Technical and operational persons for that node are familiar with the use of the Web Portal (SBCMP analysis, Common Services requests, Data Injection & Notification Tools)
- the injections / notifications lists concerning that Node are ready to be played

The **Initial operational capability** phase was organized as follows:

A – Scenario 0

- 1 A permanent SBCMP has been established and maintained with progressively evolving features
- 2 As many agencies as possible have been connected to the network and asked to provide operational feedback on the SBCMP through the federated chat and data injection tools
- 3 Operational and technical feedback has been analysed and reported, wrt the main “validation criteria” pertaining to the SBCMP:
 - a. Show “cooperative + non cooperative” track information exchange among National Systems
 - b. Show regional correlation in overlapping areas (increased awareness)

B – Events

- 1 Responsible PNs have played back scenarios events (selected according to availability of technical tools)
- 2 Involved End-User Operators have interacted with the scenarios according to the injections lists and the available technical tools & services
- 3 Operational and technical feedback have been analysed and reported, wrt the main “validation criteria” pertaining to the BMM Services:
 - a. Show that operational scenarios are significant for the involved Users
 - b. Show that the SBCMP, Common Services and Collaborative Tools implemented are supporting the Users in the execution of their operational missions

The **Medium operational capability** phase will be organized as follows:

- 1 The SBCMP will be established and maintained with full features
- 2 Wide Area Mapping and Data Augmentation Services have been fully available
- 3 Responsible PNs have played back different mix of scenarios 3,4,5 in order to establish the best VIP demo vignette
- 4 Involved End-User Operators have interacted with the scenarios according to the injections lists and the available technical tools & services
- 5 Lesson learnt have been derived and the VIP day demo has been prepared and refined

After the end of the Medium Operational capability phase, an assessment of the capabilities has been performed by each Nation with the respective Operational Nodes and Primary Nodes.

The **Final operational capability** phase has been organised as follows:

1. Identification and test of scenarios selling points
 - a. Recording and enhancement of VIP demo vignettes selling points
 - b. End-Users Training on VIP Demo scenario
2. Preparation and running of VIP Demo in Bruxelles

3 OPERATIONAL ASSESSMENT

The Demo Driving Team has continuously worked in collaboration with the National User Coordinators in order to perform an operational assessment of the XMSN Nodes capabilities and services throughout the experimentation phase.

The operational assessment has been performed in two primary ways:

- Through the evaluation of the information exchange implemented on the XMSN network by the connected nodes (SBCMP or better Scenario Zero assessment)
- Through the execution of collective sessions with the Users where simulated vignettes have been played by the involved Users and recorded by the Demo Driving Team.

In this section, the major results of both types of assessments are reported.

3.1 OPERATIONAL ASSESSMENT OF THE SBCMP

The following guidelines were defined to support BMM Partners (Users) in the operational assessment within the BMM Experimental Demonstration.

At the current stage of BMM development the National Systems are not interconnected two-way to the Network but only one-way (i.e. they feed the network but don't integrate the SBCMP into their own User interface), therefore **the assessment of the SBCMP is performed through the so-called "Secondary Node" interface for all Users**, consisting in a web browser access to one of the 5 Web Portals hosted by the Primary Nodes.

Each Web Portal has his own specific features, but all PN web portals perform federated User access management (Users can connect to the network with the same credentials on all portals) and federated BMM service management (Users can access to the BMM Services offered by each PN regardless the portal they use for connection).

Automatic service federation is generally implemented for the *Track Data & Information Exchange* and *Data Augmentation* Common Services. As a consequence information like tracks, notifications, alerts and events can be introduced in the SBCMP through all the Nodes and are automatically shared among nodes in a synchronous or asynchronous mode through the federated services.

BlueMassMed Thematic Report n.4 – an experimental demarche in maritime information exchange



However, regional correlation and wide area mapping products are not yet fully integrated, therefore the related information is generally visible only through access to the information owner Web Portal.

Moreover, the User Access Directory Federation is not yet fully automatic but a manual replication mechanism is used. Therefore if one User changes his profile credentials on one Web Portal, the changes should be notified to the BMM DDT in order to be replicated on all web portals

The Users are normally expected to access through their respective national PN web portal, although this is not a technical or architectural constraint and Users are registered and encouraged to visit all available web portals.

The Users are registered with a “Super User” or “User” User Profile granted by the respective National PN. The “Super Users” have access to the User Directory and to the Service Registry for System Management functions, and are generally the local users of Primary Nodes.

The Users with “User” credentials have generally access to:

- one or more web pages displaying (in tabular format and/or on a webgis map) the SBCMP and managing the services available from all the PNs
- collaborative tools provided by the PN (chat, forum, blog, etc.)
- dedicated web pages or windows allowing the management of the other common services (when implemented):
 - o Data Augmentation
 - o Wide Area Mapping
- tools to inject Track/Data/Events

In the current implementation, the SBCMP is compiled by all available PN exchange periodically all the available track information in an area of interest corresponding to the whole Mediterranean sea and over an unlimited time window.

Future versions of SBCMP procedure implementation will include automatic space-time association and correlation of own and external tracks so that a more powerful decision support capability is offered.

The Operational Assessment Procedure listing all the subsequent steps that have been followed by the Operators is reported in Annex 3.

The guidelines define how the Users are expected to perform the operational assessment of the BMM Scenario Zero within the experimentation phase, in terms of:

- the expected actions that Operator should perform during an assessment session
- the criteria for the assessment of BMM services results.

The following main results were achieved in terms of SBCMP (Scenario Zero) during the experimentation period:

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



- (1) five (5) Nodes (Italian Interagency Primary Node, French Navy Interagency Primary Node, Spanish Navy Primary Node, Spanish Guardia Civil, and Portuguese Navy Primary Node) were fully able to exchange own Ship Tracks in near real time, and tracks could be successfully rendered on the SBCMP by all Nodes Web Portals

- (2) Malta (Armed Forces) and Hellenic (Navy) were able to exchange ship tracks with the other Nodes through bilateral agreements with Italian Navy. Their tracks were therefore also fully visible and accessed through the Italian Node to all the other Nodes

- (3) The SBCMP was exploited by Authorities relating to the following sectors:
 - border control
 - customs
 - fisheries control
 - maritime safety and search & rescue
 - marine pollution
 - maritime security
 - prevention and contrast of illegal activity

- (4) The SBCMP was fed by several national legacy systems, adapted through the established primary nodes:
 - Italian Primary Node:
 - National Coastal Surveillance System;
 - VRMTC
 - National VTMIS
 - National AIS network
 - SIA - Ministry of Interior Information System
 - C4I – Guardia di Finanza Maritime Surveillance System
 - Greek VRMTC (through a bilateral agreement)
 - Malta VRMTC (through a bilateral agreement)
 - ASI Cosmo-SkyMed

 - French Primary Node:
 - National Maritime Surveillance and State Action at Sea Coordination System - SPATIONAV through OCEAN system interface (correlated radar & AIS tracks).
 - Pleiades HR-Satellite (CNES)

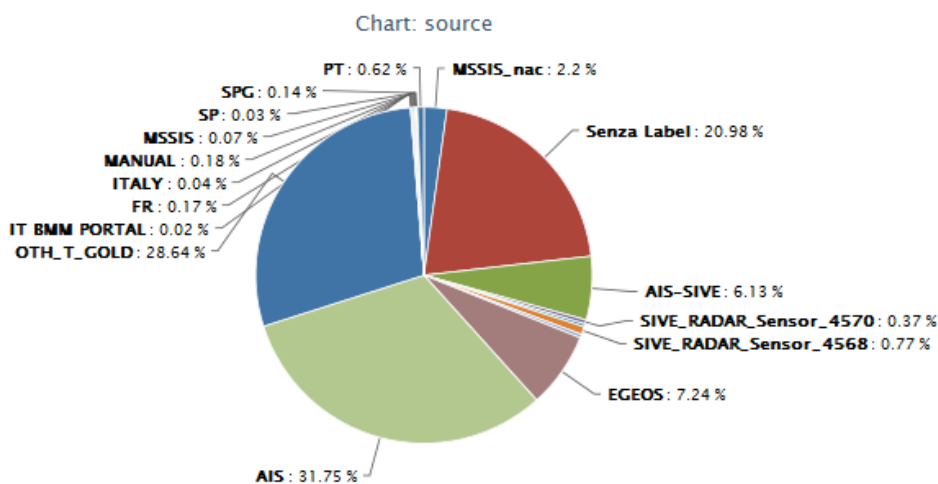
 - Spanish Navy Primary Node:
 - National MSA System (SIVICEMAR)

- National AIS network
- Spanish Guardia Civil Primary Node:
 - SIVE (Maritime Border Surveillance and Protection System);
- Portuguese Primary Node:
 - Coastal and Açores Surveillance System – COSMOS (Marinha);
 - Coastal Surveillance System – SIVICC (Guarda Nacional Republicana).

(5) The SBCMP was populated with the following types of ship information:

- AIS Tracks
- AIS Ship Static Information
- AIS Voyage Data
- VMS Report
- LRIT Report
- SAR Ship Detection Report
- Coastal Surveillance Radar tracks
- VTS Radar tracks
- SAR satellite images
- HR satellite images
- Alert and Notifications

An example of distribution of tracks in the SBCMP by track source is reported in the charts below.



(6) The capabilities of the participating authorities of the EU Member States to communicate maritime surveillance information in a systematic manner with other authorities in the same country and other participating countries has been

demonstrated with particular reference to the use of the following operations:

Machine-to-Machine Service Interface (Node-to-Node):

- GetAreaInfo
- GetNotificationInfo
- GetShipInfo
- GetShipInfoByVoyage
- GetShipVoyageInfo
- GetTrackCount
- GetTargetInfo
- GetTargetInfoByVoyage
- GetTargetVoyageInfo
- GetAreaRapidMapping
- ProvideAreaRapidMapping
- SetSubscription
- Unsubscribe
- ProvideTracks
- ProvideMeteoNotification
- ProvidePOLREPNotification
- ProvideSafetyNotification

Man-to-Machine Service Interface (User to Node)

- Manual Track Injection/modification/delete from Web Portal
 - Alert/Notification/Event Injection/modification from Web Portal
- (7) Training, Familiarization and real-time Operation of the BMM Primary Nodes was performed by partner agencies operators
- (8) Co-ordination of end users by means of joint training sessions (at least one session for each participating Member State)
- (9) Realization of manuals and procedures for BMM primary node operation and SBCMP Operational Assessment
- (10) 1,5 months continuously running of the XMSN (from 16 April to 7 June 2012) to test and validate the information exchange (real time maritime picture, intelligence information) on the whole Mediterranean Sea.
- (11) 37 partner agencies assessing the operational results of the project.
- (12) More than 50 operators able to operate the BMM Primary Nodes.

BlueMassMed Thematic Report n.4 – an experimental demarche in maritime information exchange



Thanks to the BMM Service Federation, alerts generated within a specific Community are associated to ships in the SBCMP and shared among the other communities according to established privileges

USE CASE 2

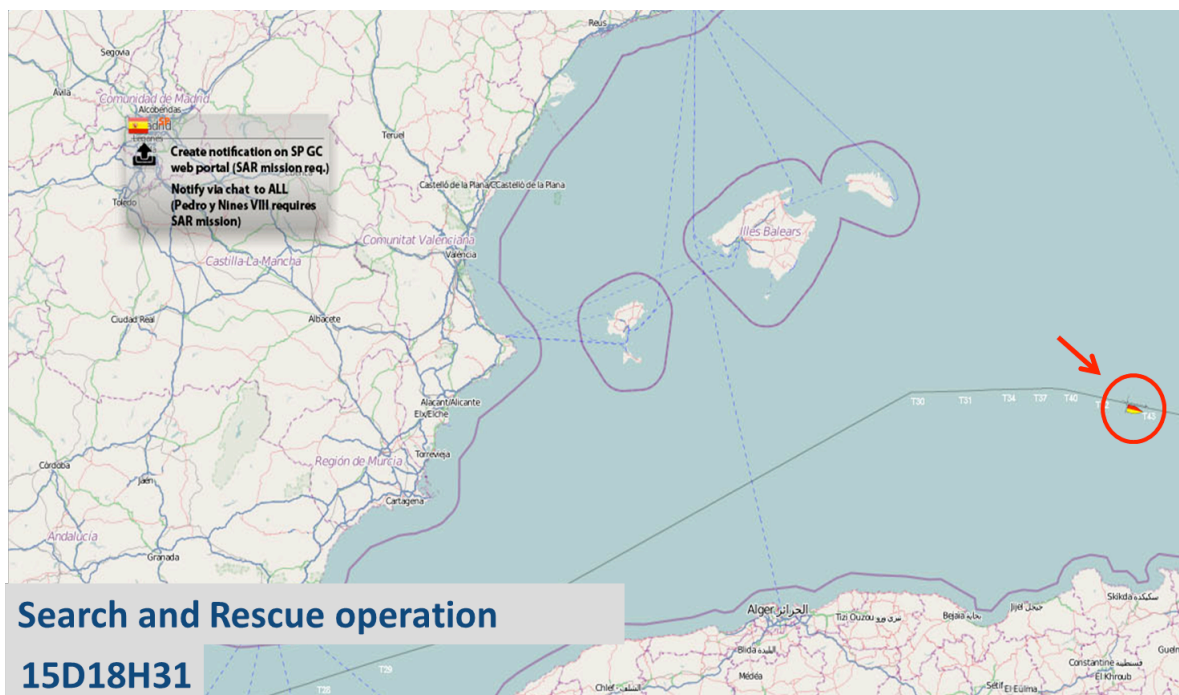
Europol informs Italian Ministry of Interior on the presence, in the Suez Canal, of a Liberian-flagged cargo ship (MV Fortress) which sailed from a port in the Pacific, carrying a cargo of goods in bulk and heading to Barcelona.



Thanks to the direct connection to the BMM Network Italian Ministry of Interior gets intelligence info, publishes an alert on MV F1 and asks reinforced monitoring including satellite monitoring to military and civilian authorities.

USE CASE 3

Pedro y Nines VIII, a Spanish vessel, sends an EPIRB emergency message. SP SASEMAR notifies the emergency to the whole BMM community and coordinate SAR operations. Thanks to the BMM service federation, law enforcement authorities diverts their assets in order to support the SAR operation.



► IMPROVING AWARENESS ON SHIPS OF INTEREST

These are very complicate situations where an Authority which is following a situation of interest improved its own awareness thanks to the exploitation of information provided by other Authorities on the BMM Network.

In some cases the Authorities “improving” awareness are taken to do so because of previous alerts on areas or notifications for reinforced monitoring issued by the requesting Node. In other cases, the improvement of awareness derives from the natural “proactive” contribution of each Node to the BMM Network, as a consequence of the “responsibility-to-share” paradigm application.

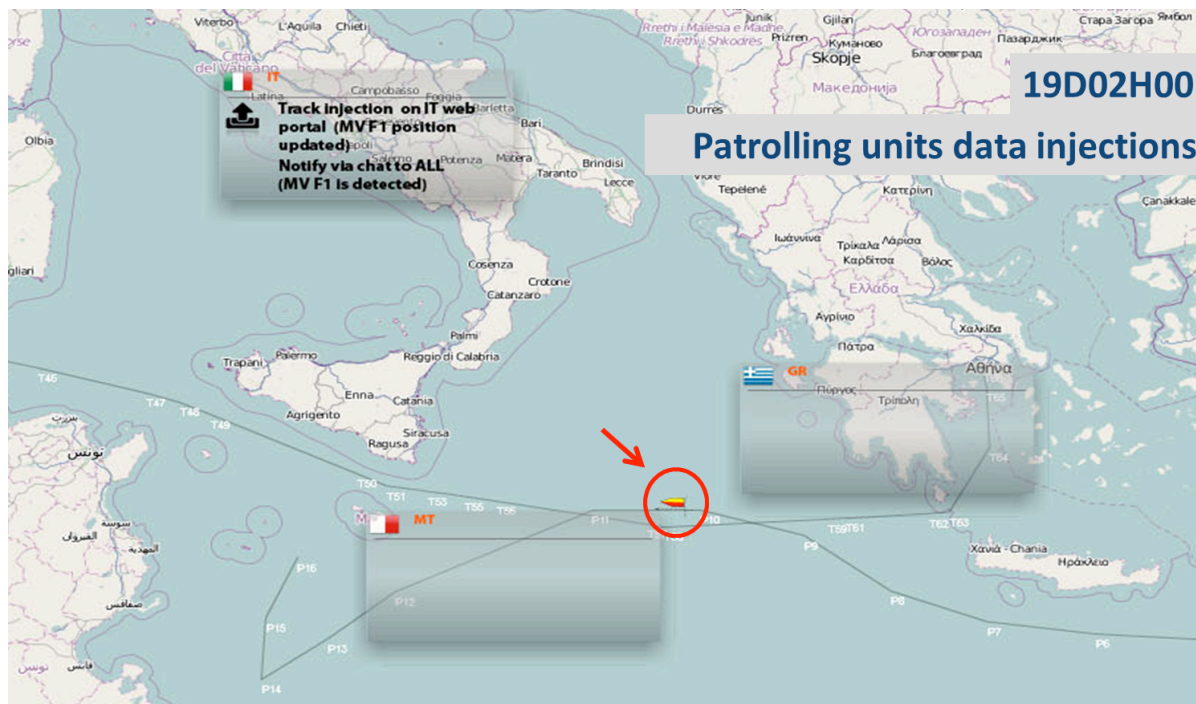
These situations are very useful to allow support from military and security authorities to civilian mission, also in consideration of the high number of patrolling assets (air / sea) normally employed by such authorities on average in the Mediterranean.

A particular but very important case is represented by the exploitation of Satellite Assets, which by their nature have a higher added value if their use and scheduling is shared and optimized over the areas of interest.

The following situations have been played with the involved Users.

USE CASE 1

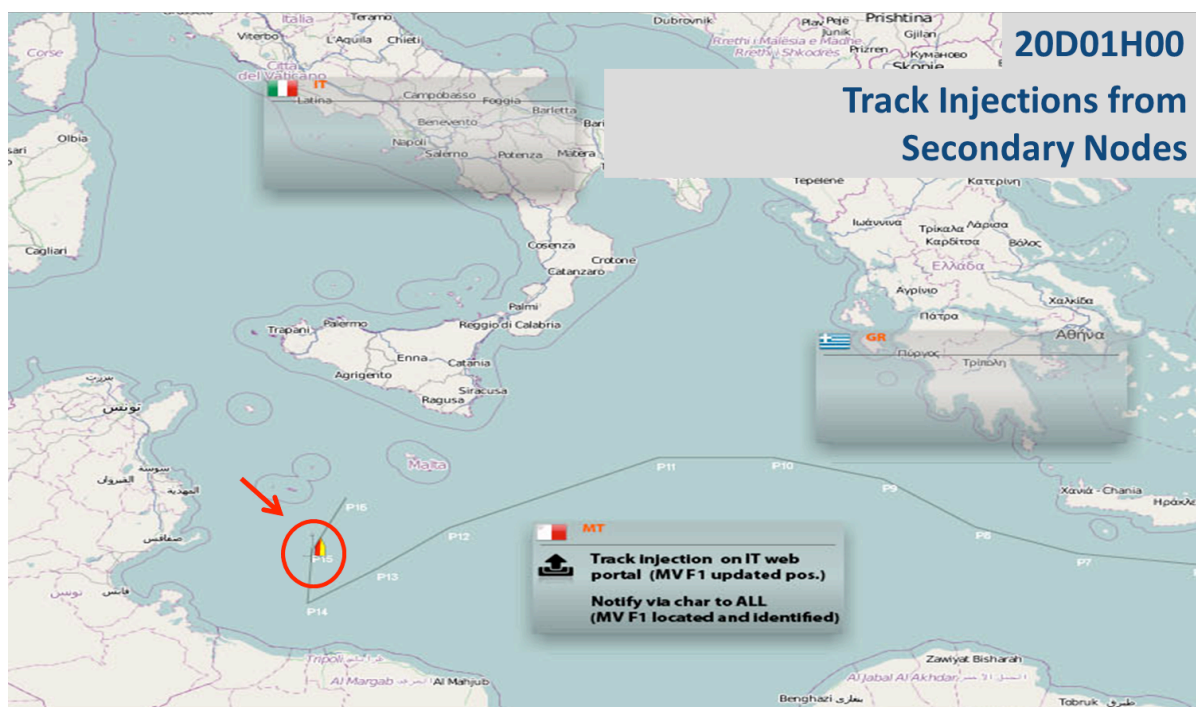
After a diversion maneuver and switching off the AIS the M/V F1 is lost on the AIS/Radar Picture.



Thanks to the BMM services federation, a Naval Patrol active in the area gets a potential contact of the M/V F1 track. IT GdF commands an Air Patrol active in the area to survey the potential "F1" ship. Track is visually identified as the MV F1. Identification is published on SBCMP and shared within the BMM community.

USE CASE 2

MT AF detects a suspected ship on its own national back-end system. Updated positions are inserted on the SBCMP through a simple web portal access.



USE CASE 3

Thanks to the direct connection to the BMM Network, IT ASI provides satellite images on Suez Channel, on the Sicily Channel and in the Eastern Med area where no coverage from terrestrial sensors is available.

Thanks to the Ship Detection Services, ships of interest are detected and located



▶ **DETECTING ILLEGAL ACTIVITIES**

In these situations Authorities following a situation of interest request and obtain from the other Authorities on the Network, additional information and augmentation data allowing the detection and/or proof of evidence of illegal activities.

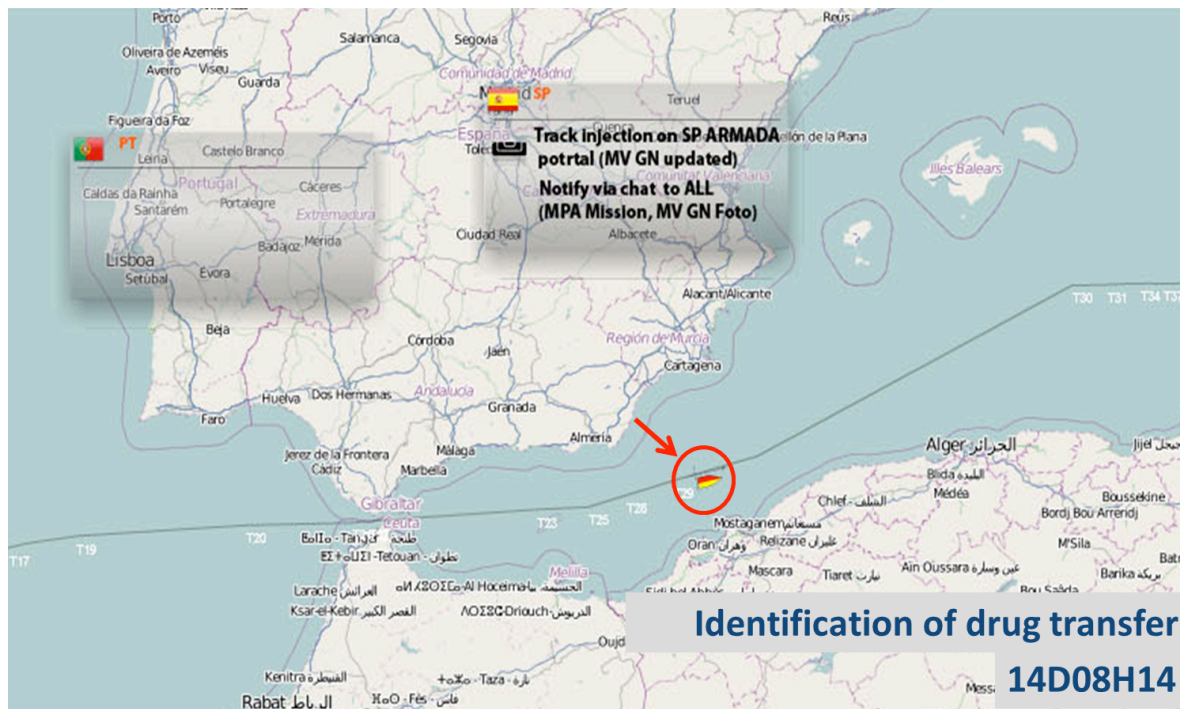
The additional information is provided exploiting sectorial knowledge as well as “national” knowledge about the ship of interest, including historical static ship data as well as track augmentation info like images, document and video shoots of the track from patrolling or satellite assets.

These situations are very useful to allow support from civilian authorities to military and security authorities, also in consideration of the high number of ship information data bases, Port State Control, Custom Registries etc. available to civilian authorities on average in the Mediterranean.

The following situations have been played with the involved Users.

USE CASE 1

SP (DAVA) Maritime Patrol Aircraft locates M/V GN during a rendezvous with a fishing boat, visually identifies the suspected ships and take pictures of drug transfer.



Pictures are transferred to the BMM community and automatically associated to the suspect ships as proofs of the illegal activities

USE CASE 2

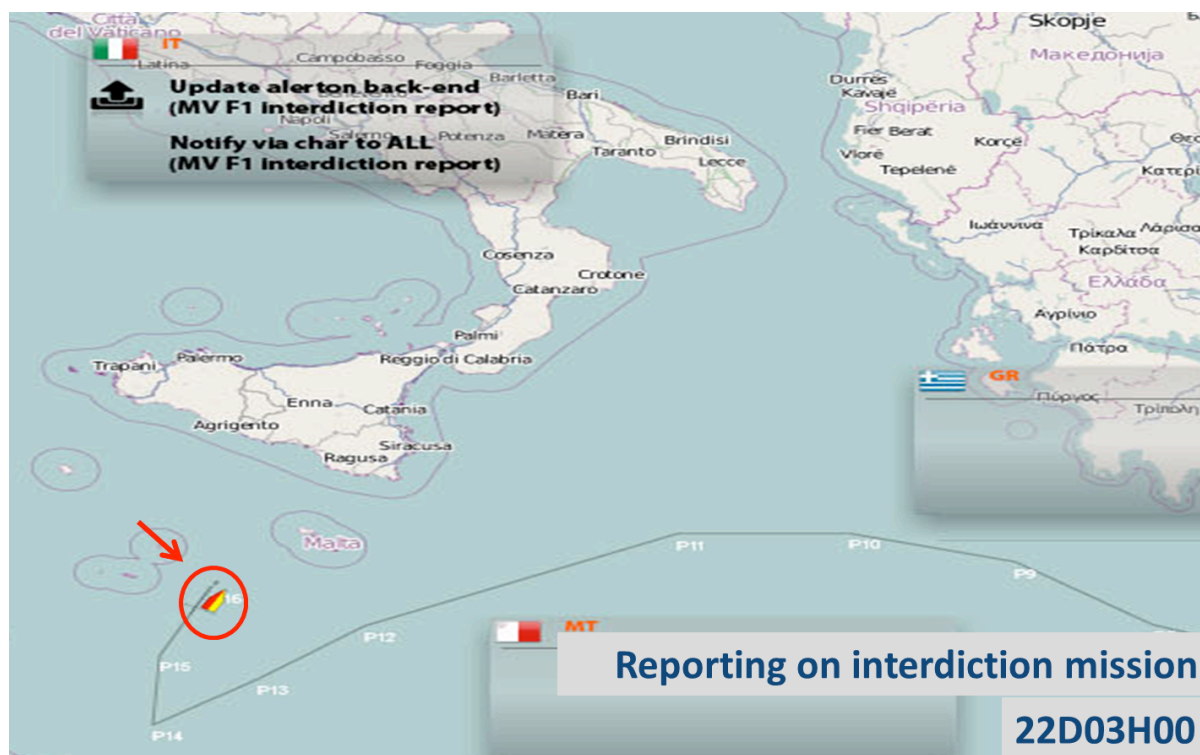
MV GN reaches the Port of Pyreus, where she prepares to off load 25.000 Tons of bulk sugar and cocaine



Thanks to the information collected through the BMM network, GR authorities have enough evidence to conduct police operation. At the end, a report on this operation is published on BMM to inform the BMM community on the police operation results.

USE CASE 3

Thanks to the evidence collected through the BMM network, the Italian Ministry of Interior closes the alert and provide the authorized BMM partner with information collected during the interdiction



The **Annex 5** reports the screenshots of the main actions performed by the Users during the execution of the Use Cases described in the previous section.

4 VIP DEMO SCENARIO EXECUTION

Based on the results of the operational assessment, the VIP Demonstration scenario was designed and optimized with the aim to:

- represent the most valuable situations
- make most of the partners play
- make all the PN play
- stay within the 15 minutes time slot for playback

The VIP Demo Scenario as resulting from this process is described in Annex 6 and features:

- ▶ Three different sectorial operational situations, represented by three Simulated Ships:
 - M/V GOODNOSE, a Colombian flagged vessel sailed from Port of Barrio Norte (CL) and heading towards Athens (Port of Piraeus) with a cocaine cargo

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**

- M/V F1, a Liberian flagged vessel sailed from Port Said in Suez Channel and heading towards Barcelona, involved in human trafficking
 - M/V Pedro Y Nimes III, a Spanish flagged vessel in distress west of Sardinia
- ▶ Total Users = 39
- ▶ Users playing Injections: 17
- PT Navy, PT GNR, PT PJ
 - FR Navy, FR Custom, FR MRCC
 - SP Navy, SP Guardia Civil, SP SASEMAR, SP DAVA, SP SEGEPESCA
 - IT Navy, IT MOI, IT GDF, IT CG
 - GR HCG, MT Armed Forces

The VIP Demo Scenario was played under the above mentioned conditions 3 times during the BLUEMASSMED PROJECT CONFERENCE on June 7th 2012 in Brussels.



The main screenshots from such execution are reported in Annex 6 for reference.

5 CONCLUSIONS

The global experimentation process in BMM has been a collective work involving 5 Primary Nodes connected to more than 30 maritime surveillance systems and more than 100 competent authorities, and required the work of more than 500 persons in a 6 months period.

- ▶ The Experimental Demonstrator has been developed as a first Proof of Concept of the designed architecture, where:
 - All the Primary Nodes have implemented the M2M SOAP interface on 2 way SSL connection, over which the core services and common services have been developed, integrated and tested
 - All the Primary Nodes have implemented the H2M Web Interface on 1 way SSL connection, through which the Users can access and exploit the BMM Network and Services.

- ▶ The following access points are available:
 - <https://bluemassmed.eurocis.fr> (France Interministerial PN web portal)
 - <https://itbmm.marina.difesa.it> (Italian Interministerial PN web portal)
 - <https://bmm.covam.es> (Spanish Navy PN web portal)
 - <https://qa.compass.marinha.pt> (Portugal Navy PN web portal)
 - <https://213.229.156.42> (Spanish Guardia Civil PN web portal)

- ▶ All the Primary Nodes have implemented the M2M back-end interface with the relevant National Systems. In general those systems are not interconnected two-way to the Network but only one-way (i.e. they feed the network but don't integrate the SBCMP into their own User interface)

- ▶ A background process is performed by the Primary Nodes in order to build for the benefit of all Users a SBCMP refreshed each 1 to 10 minutes.

- ▶ The SBCMP is a true cross-sectorial cross-border maritime picture, featuring:
 - correlation of exchanged tracks among all the available monitoring systems
 - enrichment of the picture through the exchange of notifications, alerts, intelligence info and satellite imagery

- ▶ The SBCMP is a "basic" picture, containing the information that can be shared among all Users. Specific Users can add to the SBCMP sensitive information layers built exchanging tracks and other information with Nodes having equal privileges

- ▶ Users are granted basic tools [through (i) machine-to-machine (soap) or (ii) human-to-machine (web) interface] to:
 - explore the maritime situation (SBCMP) layers (basic w.r.t. sensitive)
 - search ships on the SBCMP by *Universal Id* or by *correlation with known*

trajectories

- query track histories and additional information
 - attach information (alerts, notifications) to a track
 - create / update notifications and alerts on areas
 - explore the WMS/WFS layers including geo-referenced satellite imagery
- ▶ Users can perform operational collaboration through the federated collaborative tools, exchanging information about their own operations on-going, etc.
- ▶ Operators have validated the enhancement of their maritime situational awareness wrt to their national back-end systems according to the following improvement criteria

CATEGORY	DEFINITION
C1 – Cross Sector Track Information Exchange	National Surveillance Systems are able to share in near real time their maritime situation (tracks) establishing a SBCMP including cooperative and non-cooperative tracks
C2 - Data Augmentation	Operational Users are able to enrich the SBCMP with additional near real time information, notifications, alerts, events and information reports about vessels of interest
CATEGORY	DEFINITION
C3 – Regional Correlation	The SBCMP procedure is able to generate awareness and not confusion in areas where multiple tracks overlap from different sources/countries
C4 – Wide Area Rapid Mapping	Operational Users have the capability to access efficiently and rapidly to Satellite Geospatial Products available in background from Satellite Service Provider Nodes, without the need of complex programming and in-advance scheduling
C5 – Data Distribution	BMM partners (PN&SN) can share tracks, information, alerts, notifications and other data according to established rules allowing services and user authorisation filtering and implementation of data distribution plans
C6 - Added Value in Operational Scenarios	BMM partners are able to enhance their maritime situational awareness thanks to information shared on BMM network

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



- ▶ BMM enables Sharing Maritime Pictures supporting at technological and operational level the transition towards a “Responsibility-To-Share “ information sharing policy
- ▶ BMM allows exchanging Added Value Information about Ships, not only Ship Positions & Reports
- ▶ BMM supports the exploitation of Military and Civilian Cooperation for Maritime Awareness Improvement
- ▶ BMM optimizes the exploitation of Large Scale Monitoring Assets (e.g. Satellites and Aeronaval patrols)
- ▶ The Experimental Demonstration focus on highlighting the added value resulting from the future exploitation of the BMM network in support to institutional tasks of competent authorities.

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



ANNEX 1.1

BMM EXPERIMENTATION FINAL OPERATIONAL USERS LIST

**ANNEX 1.2
BMM SCENARIOS IMPLEMENTATION TABLES
(INJECTIONS, EVENTS, REACTIONS)**

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



**ANNEX 2
BMM EXPERIMENTATION
SCENARIOS IMPLEMENTATION - STORYBOARDS**

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



ANNEX 3 SBCMP OPERATIONAL ASSESSMENT

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



**ANNEX 4
BMM EXPERIMENTATION
USER MANUALS OF THE PN WEB PORTALS**

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



**ANNEX 5
BMM EXPERIMENTATION
RECORDINGS OF OPERATIONAL SCENARIOS EXECUTION
(USE CASES)**

**BlueMassMed Thematic Report n.4 –
an experimental demarche in maritime information exchange**



ANNEX 6
BMM VIP DEMONSTRATION SCENARIO
STORYBOARD AND EXECUTION