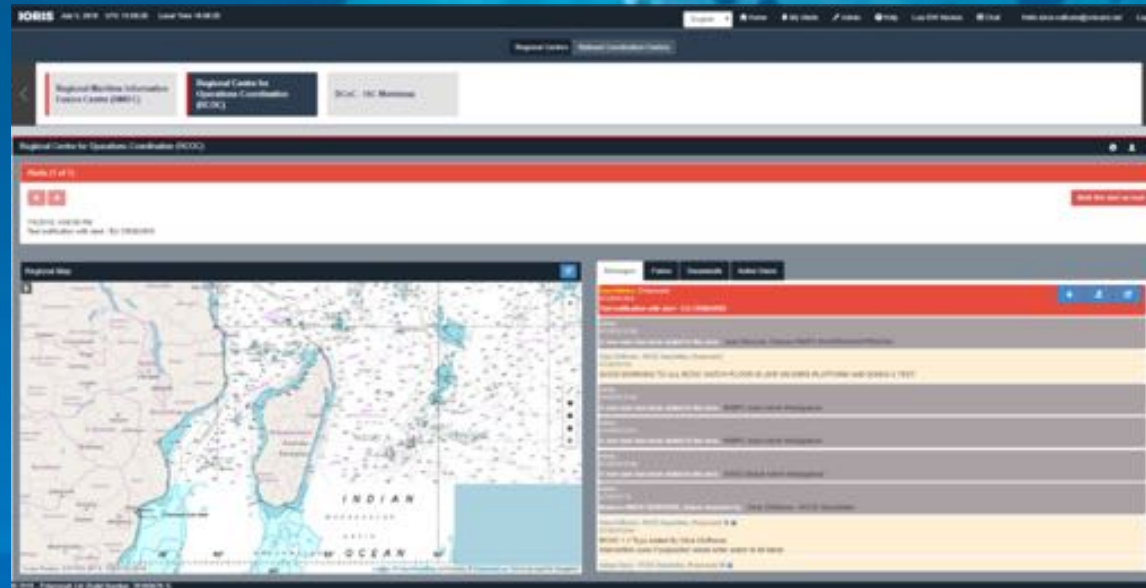


# IORIS

(Indian Ocean Regional Information Sharing & Incident Management Network)

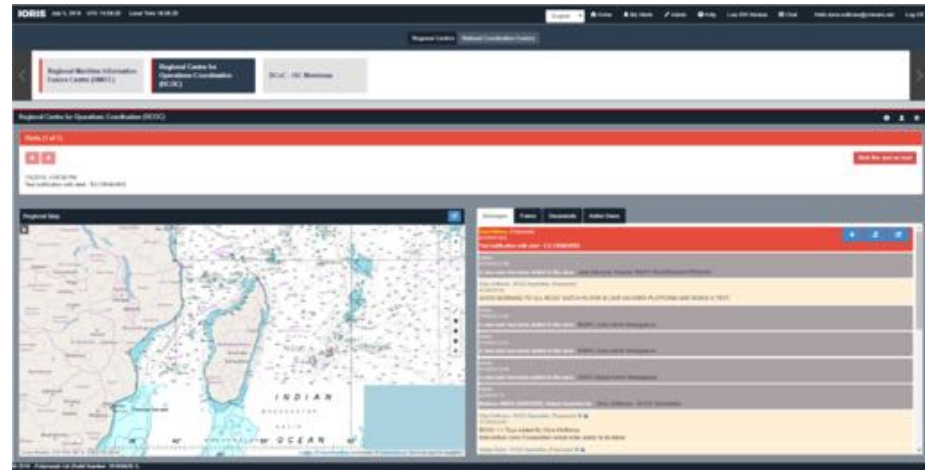


Sustainable Blue Economy Conference – Nairobi, Kenya. 26-28 Nov 2018  
Create MDA (Maritime Domain Awareness) for enhancing the  
David Nattrass – EU CRIMARIO Information Sharing Manager

# What is IORIS?

## Indian Ocean Regional Information Sharing

- Web based communications platform with end to end encryption
- Can be used for:
  - Information sharing
  - Incident Management
- Collaboration at both National and Regional.



- Ability to retain full control over who, what and when information is shared.
  - Essential part of the process to build Trust and Confidence
- Funded by EU, Designed in collaboration with regional partners, Implemented by EU CRIMARIO project
- IORIS concept built on lessons learned since 2010 from
  - DCoC ISN / MERCURY / ReCAAP IFN / IFC Changi / NCE / APAN / SeaVision



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# Ownership and Management

We are mandated to transfer IORIS ownership to the region by the end of 2019

- Regionally Owned
  - Regionally Managed
  - Regionally Located
- **Ownership and Management**
    - Current dialogue anticipates possible ownership by IOC on behalf of the region, managed through RCOC and RMIFC.



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# Developed by Polymorph



- Experienced in developing software for the Maritime Domain

– EU NAVFOR – Mercury



– EU CRIMARIO – IORIS



– OCEANUSLIVE.ORG



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# Complimentary Systems

- **IORIS compliments existing systems to avoid fragmentation of information sharing & work in synergy with;**
  - **MERCURY**
    - Dedicated in support of EUNAVFOR Atalanta
    - Owned and Managed by EU - Administered by MSCHOA
    - **Essential to the region for the link to Atalanta & (Indirectly) Maritime Community**
  - **Sea vision**
    - Dedicated platform for Maritime Data visualisation (AIS, SAIS, etc.)
    - Owned and managed by US
    - **Essential to the Region for providing the COP (Common Operational Picture)**
  - **RMIFC Fusion Platform (anticipated 2019)**
    - Dedicated platform for data fusion and analysis in the Regional Maritime Fusion Center in Madagascar

# Interoperability

- **SeaVision**
  - Export / Import a set of objects (ships, areas etc.) to an IORIS user/area with Admin rights. A snapshot of a situation or area.
  - Interoperability in development with SPAWAR / POLYMORPH.
  - Trial during Cutlass Express 19 - Jan/Feb '19
- **RMIFC Fusion Module**



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# IORIS is designed with multiple Areas

The screenshot shows the IORIS web application interface. At the top left, it displays 'IORIS' and the date 'November 13, 2018' along with 'UTC 03:54:20' and 'Local Time 06:54:20'. On the top right, there are links for 'English', 'Home', and 'My Alerts'. Below this, there are three main navigation tabs: 'Regional Centres', 'National Coordination Centres', and 'IORIS Hub'. Underneath these tabs, there are four buttons: 'Regional Maritime Information Fusion Centre (RMIFC)', 'East African Standby Force (EASF)', 'DCoC - ISC Mombasa', and 'CRIMARIO INFO PAGE'.

- Flexibility / Unlimited Areas can be created
  - Regional Centre area
  - National Coordination Center area
  - Create an area or multiple areas to manage a specific incident or incidents
  - Can be assigned local administration to control access
  - Full autonomy over your area and information.

The image shows two screenshots of the IORIS web application interface. The top screenshot shows the 'Admin Menu' with options: Home, Audit Event, Alarms, User Manager, Session Manager, Area Manager, Area Types, Reporting Form, Workflows, Help Manager, and System Settings. The bottom screenshot shows the 'Area Admin Menu' with options: Home, Manage Document Types, Manage Folders, Access Control, Permissions, Key Contacts, Statistics, Reporting Form Templates, Manage Documents, Markers Import, and Area Alerts.



# Messages / Discussion Area

The screenshot displays a maritime information system interface. At the top, there are navigation tabs for 'Regional Maritime Information Fusion Centre (RMIFC)', 'East African Standby Force (EASF)', and 'DCoG - IBC'. A 'New Post' dialog box is open, featuring a text input field for 'Enter your discussion text here', two checkboxes for 'Alert Present?' and 'Has Marker?', and an 'Add Post' button. Below the dialog, a map of the Indian Ocean region is visible. A red arrow points from the 'New Post' dialog to the map. On the right side, there are tabs for 'Messages', 'Forms', 'Documents', and 'Active Users'. At the bottom, an alert notification is displayed, titled 'Alerts (1 of 1)', with a 'Mark this alert as read' button. The alert text reads: '11/5/2018, 12:02:57 PM In the night from November 4 to 5, 2018, Mr. JEONG HOSOOK, a 27-year-old South Korean citizen, who is a member of the crew of KMARIN AZUR cargo vessel, flying PANHANA flag, was reported missing at sea. The ship KMARIN AZUR, MMSI 355113000, IMO 9632492 is a cargo ship heading to Singapore. Currently, he has turned back and is on a reverse route to reach the supposed disappearance position of the person at PSN 16°24 14S, 060°38 2E. The ship KMARIN AZUR, MMSI 355113000, IMO 9632492 is a cargo ship heading to Singapore. Currently, he has turned back and is on a reverse route to reach the supposed disappearance position of the person at PSN 16°24 14S, 060°38 2E. KMARIN AZUR, MMSI 355113000, IMO 9632492 is a cargo ship heading to Singapore. Currently, he has turned back and is on a reverse route to reach the supposed disappearance position at PSN 16°24 14S, 060°38 2E.'

- Messages / Discussion. Posts can be seen by all members of the area
- Create an Alert (visual / audible)
- Create a marker linked to map.

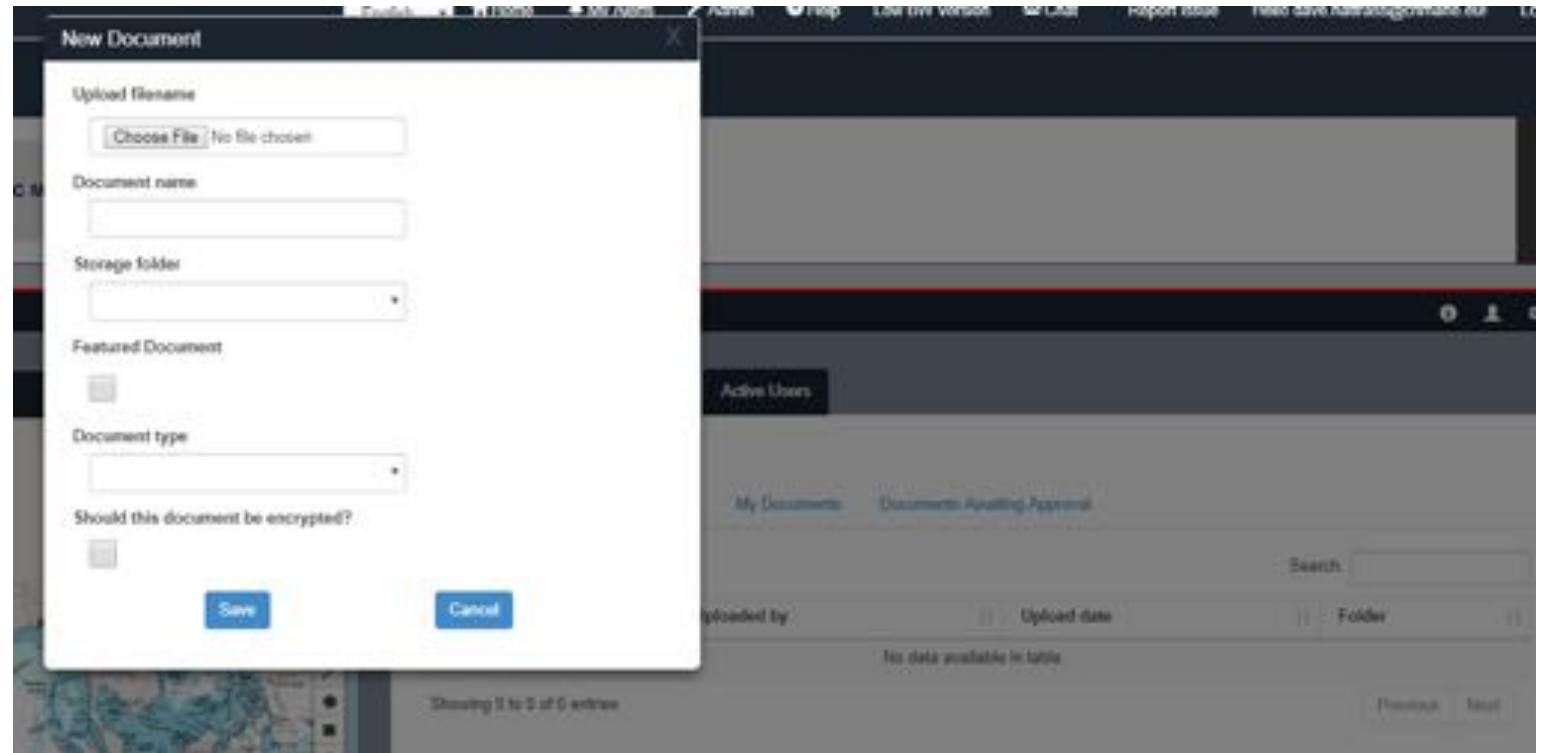
# Forms

The screenshot shows a web application with a navigation bar containing 'Messages', 'Forms', 'Documents', and 'Active Users'. The 'Forms' menu is active, displaying a 'UKMTO Vessel Position Reporting Form'. The form includes fields for Ship Name, Flag, IMO Number, INMARSAT Telephone Number, Date/Time (dd/mm/yyyy), Position (with a map), Course, Passage Speed, Freeboard (mtrs), and Cargo. A 'New Form' button and a search bar are also visible.

- Create pre-formatted reporting forms – i.e. BMP5
- For Regional Use (IAW SOPs)
- Modify for national interagency use

# Documents

- Upload and share documents and files (any format)
- Encrypt if required
- Create folders
- Create documents types (i.e. daily reports)



# File encryption tool

- Where additional file protection is required, these can be individually encrypted at source (AES256) before sharing.



- User transmits encryption key via different medium



# Mapping

- Nautical Charts / Mapping Tools

**Create Map Markers**  
Polyline / Polygon / Rectangle  
/ Circle / Draw a marker

**Import / Export .csv .kml**

**Import COP from SeaVision**

Marker Source	Custom Markers
Type	
Tag Name	test01
Comment	
Created By	Zia Lallmahomed
Marker Type	Illegal, unregulated, and Unreported Fishing (IUU)
Latitude	-19.81839
Longitude	56.00281
Heading	15
Speed	10
Created Time	Tue, 18 Sep 2018 05:20:41 UTC
Time of Fix	Tue, 18 Sep 2018 05:20:41 UTC
Edit Marker	Archive Marker

**Marker Source Filters**

- Custom Markers
- Collaboration Center Markers
- AIS Markers
- Imported Markers
- Custom Form Markers

**Marker Type Filters**

- Ship of Interest
- Military
- Boundary
- Search & Rescue
- Theft, Robbery & Piracy at Sea (TRAPS)
- Maritime Terrorism
- Illegal, unregulated, and Unreported Fishing
- Maritime Incident Pollution
- Smuggling arms, drugs and contraband
- Maritime natural event (HADR)
- Human smuggling and illegal immigration
- Weapons proliferation & security initiative
- Merchant
- Law Enforcement
- Unknown

**Map Layers**

Base Layer: Standard

Overlay Nautical Map

**Marker Time Filters**

3 Hrs, 6 Hrs, 12 Hrs, 24 Hrs, 48 Hrs, 1 Wk, 1 Mth, 3 Mth, 6 Mth, All

**Range Indicators**

+5 Hrs, +3 Hrs, +6 Hrs, +12 Hrs, +18 Hrs, +24 Hrs

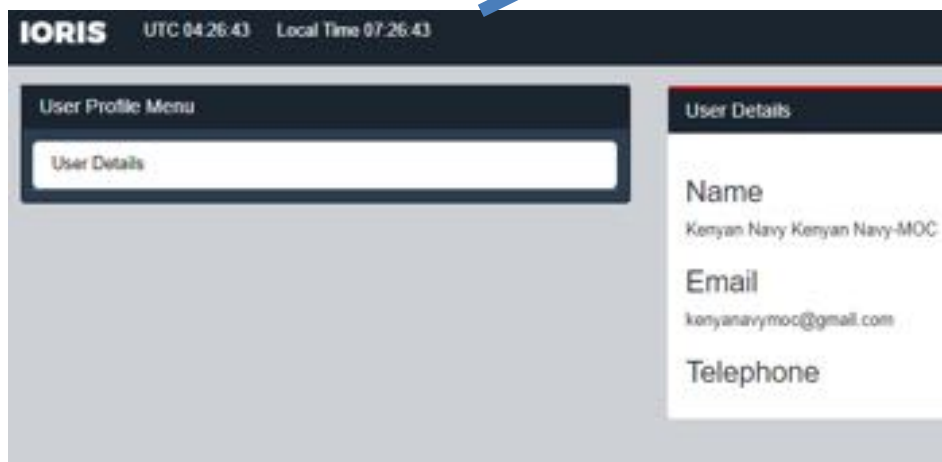


# Active Users / Chat



Area Member Name	Status	Actions
Dave Natrass	Active (19m)	
Kenyan Navy Kenyan Navy-MOC	Active (55m)	
Olive Chiffonne - RCOC Seychelles	Inactive (4m)	
NMIFC Area Admin Madagascar	Inactive (6m)	
Selwyn Denis - RCOC Seychelles	Inactive (38m)	
Ronny Matatikan - RCOC Seychelles	Inactive (26m)	

- View active users
- View user profile
- Create Private Chat



**IORIS** UTC 04:26:43 Local Time 07:26:43

User Profile Menu

User Details

**User Details**

Name  
Kenyan Navy Kenyan Navy-MOC

Email  
kenyanavymoc@gmail.com

Telephone



Chat Members	Last Message Summary	New Messages	Last Updated	Last Received
You & Kenyan Navy Kenyan Navy-MOC	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)
You & Ronny Matatikan - RCOC Seychelles	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)
You & NMIFC Area Admin Madagascar	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)
You & Selwyn Denis - RCOC Seychelles	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)
You & Dave Natrass	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)
You & Olive Chiffonne - RCOC Seychelles	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)
You & NMIFC Area Admin Madagascar	Hi! Hi! Hi!	0	2016-11-07 10:11:56 (GMT+03:00)	2016-11-07 10:11:56 (GMT+03:00)

# Export Log:

- **Export Log**
  - Ability to export logs from an area to PDF
    - For an incident
      - Assist reporting
      - Legal requirement/finish

Export Log

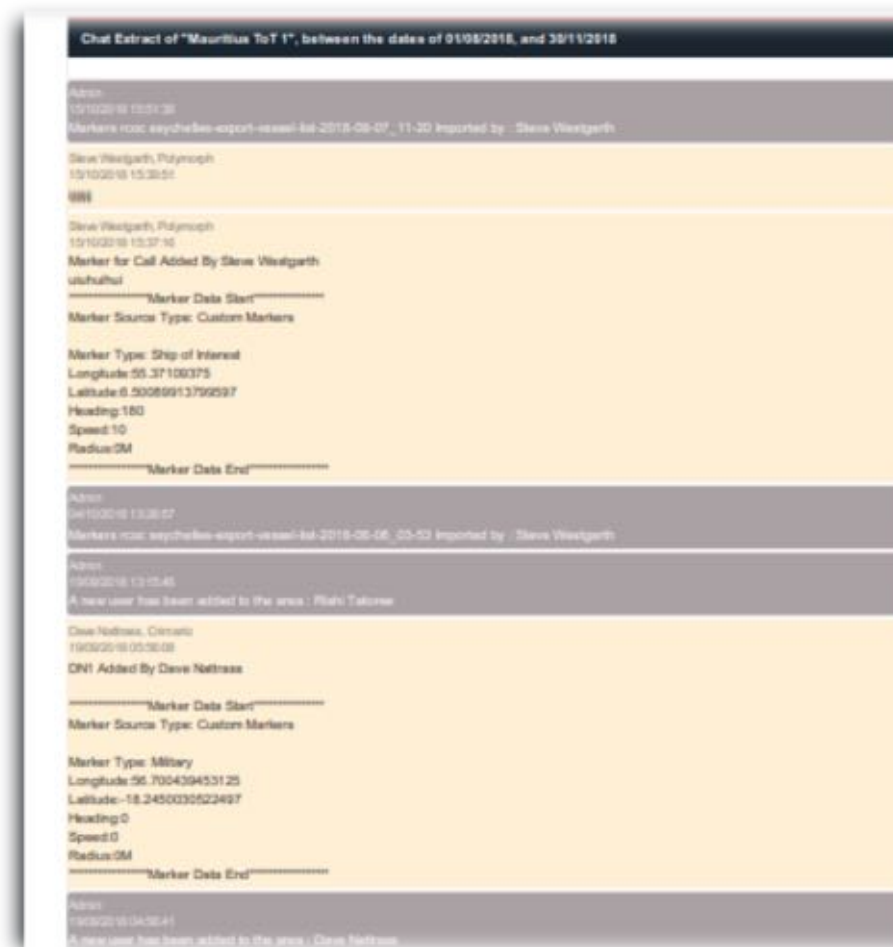
Start Date  
dd/mm/yyyy

End Date  
dd/mm/yyyy

Events  Markers  Message

Filename  
\_\_\_\_\_

Export Close



# Menu Languages



- English & French available now
- Arabic, Portuguese and Somali by January 2019
- No direct translation within the platform

# VoIP – Voice over IP

- Reviewing possible addition of Voice over IP function during Phase II development in 2019



# Who can access IORIS?

- **SISE ( Single information sharing environment)**
- **Scope of license**
  - Operational Use
    - Indian Ocean Region Countries
    - Including DCoC member countries
  - Membership - Global
    - Countries outside of the above scope can still have an account and be assigned to a regional area (i.e. All users will have access to the RMIFC Madagascar page)




# System requirements

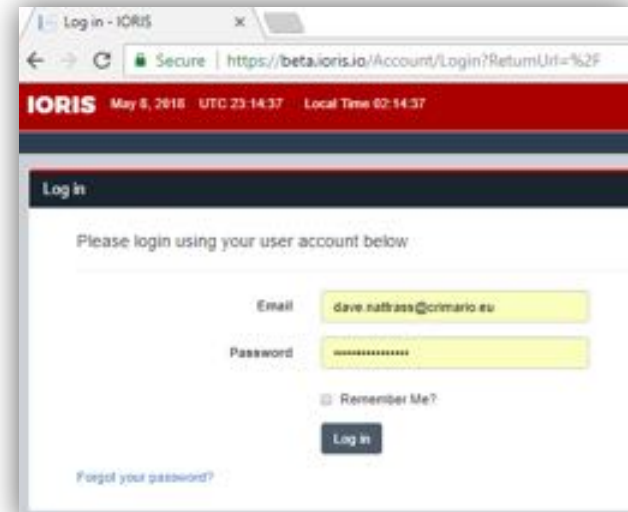
- No special equipment required
- PC with Internet access
- Robust local system/user Security Policies in place / Up to date antivirus / anti-malware
- Centres should assign a Static IP Address
- Optimised for Google Chrome
- Low bandwidth version available without mapping function

# Accounting / Auditing

- Full System accountability – Permanent event logs
- Auditing functions
  - Oversight by ILOs located in Regional Centres essential to build trust and confidence

# Security

- **End to end encryption** of all page content over the wire (from PC to PC)  

- **Username and password** with global predefined complexity / renew / history
- Optional **'two-factor authentication'**
  - To authenticate mobile users for example
- **IP Restriction** – white list of allowable IP addresses for an account
- **AES 256 encryption**. Store and share encrypted documents using industry standard.
- **Periodic Penetration testing** (Annually, and after major updates).



# IORIS – Focus on Sustainability

- EU CRIMARIO have fully funded development of Phase I, + interoperability with SeaVision
- Will fund Phase II (2019)
- Includes lifetime license for IORIS under current geographical scope



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# Anticipated running cost after CRIMARIO

- Annual cost based on:
  - Hosting (Microsoft Azure – will migrate to South Africa)
  - Maintenance (Polymorph)
  - 24/7/365 Operational Level Support (Polymorph)

**Up to €40'000 per year**

CRIMARIO will fund all hosting / maintenance and support until April 2020

**As with any system, future costs should take into consideration any developments to continue to meet regional needs.**



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# Cutlass Express 19 – IORIS

- IORIS will provide the Primary Communications during Cutlass Express 19.
  - P: IORIS
  - S: SeaVision
  - T: WhatsApp
- Interoperability functions will be tested between SeaVision and IORIS during Cutlass Express.
- Feedback from users of the Cutlass Express exercise will be used to help develop Version II of IORIS to be developed in 2019 under CRIMARIO project.



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# Training

A duplicate version of IORIS is available for training, clear identified with Red banner and 'Training Site'

- **Kenya** Kenya Navy (Train the Trainer), Kenya Ports Authority (Train the Trainer), Kenya Maritime Authority (Train the Trainer), KRA / KWS / KFS (Basic Introduction - 2 day course)
- **Madagascar** MIFC / NMIFC (Train the Trainer), Armed forces, Maritime Affairs, Fisheries, Government
- **Seychelles** (Train the Trainer) RCOC, Seychelles Coastguard, DRDM
- **Mauritius** NPS – Coastguard (Train the Trainer), Maritime Shipping (Train the Trainer), Mauritius Radio Service (Basic Introduction - 2 day course)

# Training

## To be trained:

- **Tanzania** Dec '18 / Early Jan '19 (tbc)
- **Mozambique** Dec '18 / Early Jan '19 (tbc)
- **Djibouti** December 17 to 20, Djibouti
- **Comoros** December 03 to 06, Moroni
- **Somalia** January 13 to 17, Mogadishu
  
- **EASF (tbc)** IORIS Trainers in Kenya

# MSCHOA – Cooperation for 2019

- CRIMARIO will organize up to 6 CPX exercises commencing March 2019 (tbc).
- Focused on piracy within the EUNAVFOR Mandate
- March may be the first exercise during handing over to Brest (France)/Rota(Spain)



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# Implementation Strategy Meeting

- Planned in Madagascar at the RMIFC January 2019
- IOC / EU CRIMARIO
- Plan IORIS implementation strategy for 2019
- Agree draft User / System policies pending transfer of ownership to the region



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# Run IORIS Video



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**David Natrass**

[dave.natrass@crimario.eu](mailto:dave.natrass@crimario.eu)



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