

CIRM/BIMCO Pilot Project on Shipboard Software Maintenance

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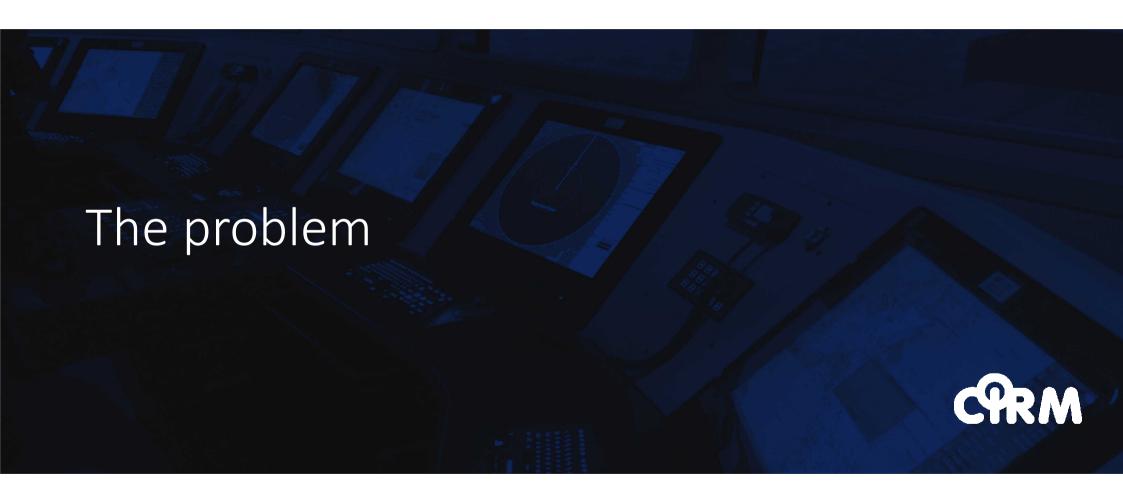
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E-Navigation Underway International 2017

Introduction

- Ship systems increasingly depend on SW of increasing complexity
- Improving the shipboard SW updating process is critical to ensuring safe and efficient navigation of the ship
- The ship-side infrastructure supporting e-navigation depends on effective software maintenance





Real life example

SERVICE R	RVICE REPORT		
Date(fecha): 4/0V . 17, 2016 W/O.N° (orden de trabajo):			
Place (Lugar): CRISTOBAL, ANCHORAGE AGENT	Type of equipment (equipo):		
Vessel (barco):	Model (modelo):		
Flag (bandera): 15LE OF MAN GRT (tonelaje): 29, 335	Serial Nº (serie):		
Customer P.O.			
REASON FOR CALL (daño reportado): PABAR NOT KET POWER	ON.		
WORK PERFORMED (trabajo efectuado): <u>ON BOARD</u> / FOUND 74だ ル	DAR OFF, WHEN I		
WORK PERFORMED (trabajo efectuado): <u>ON BOARD</u> 1 FOUND THE RA SWITCH ON THE RADAR NOT START, I REMOVE	DAR OFF, WHEN I		
WORK PERFORMED (trabajo efectuado): <u>ON BOARD</u> I FOUND THE RA SWITCHON THE RADAR NOT START, I REMOUED THE TB BOARD AND MOW THE RADAR IS ON.	DAR OFF, WHEN I		
WORK PERFORMED (trabajo efectuado): <u>ON BOARD</u> I FOUND THE RA SWITCH ON THE RADAR MOT START. I REMOVE THE TB BOARD AND AJOW THE RADAR IS ON. I PROCEED TO CHECK THE MODULATOR BOARD	TOME OFF, WHEN I O THE HV CABLE ON AND I FOUND ONE		
WORK PERFORMED (trabajo efectuado): <u>ON BOARD</u> I FOUND THE RA SWITCH ON THE KADAR NOT START, I REMOUE THE TB BOARD AND AJOW THE RADAR IS ON.	TONR OFF, WHEN I O THE HV CABLE ON AND I FOUND ONE FOR A NEW MD		

Engineer comes aboard to fix dead radar.

Replaces transistor on modulation board, system starts working.

Then he updates system software to latest version...

...radar stops working, requiring new magnetron.



Shipowner's reaction





Lack of awareness / visibility about situation on board

- Which software versions are installed? Are they appropriate?
- Are SW updates available?
- Are available updates compulsory or voluntary?
- What were the outcomes of previous service visits?
- How to obtain/monitor this information in a convenient way?



Competencies of service personnel

- How to ensure that qualified people are coming on board to perform maintenance?
- How to ensure service personnel are adequately trained and supported by makers?
- How to ensure consistency & continuity of service between different service companies?



Cyber security threats

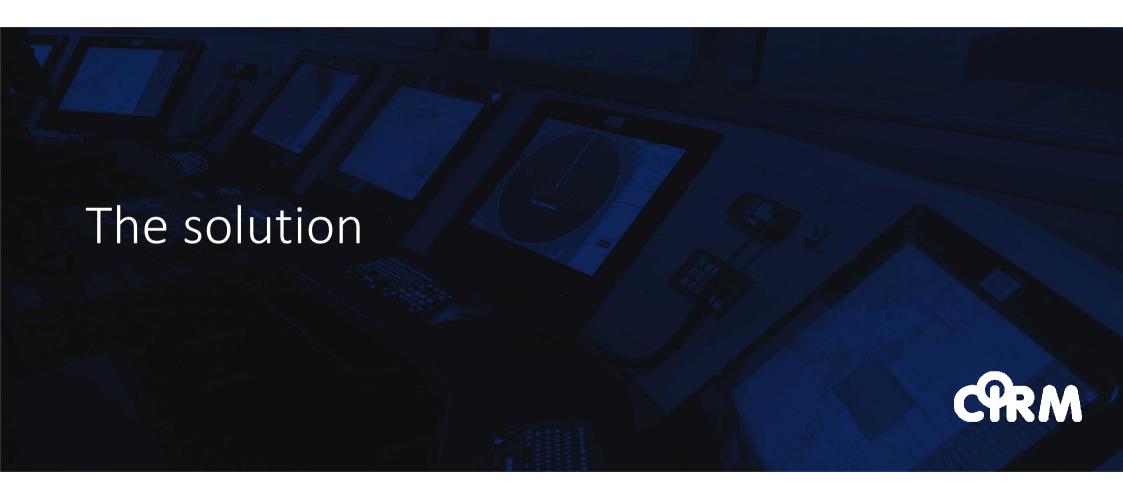
- How to secure internal networks / equipment against potential attacks during software maintenance performed on board?
- How to secure internal networks against potential attacks during remote connection?



Other concerns

- How can Shipowner effectively communicate SW problem so maintenance can be properly planned?
- What to do if SW update fails, so that system can continue to be used?
- As systems become increasingly interdependent, how to understand the effects of updating one system on the functionality on another?





Draft Standard on Software Maintenance of Shipboard Equipment

Draft Standard Software Maintenance of Shipboard Equipment

Prepared by the CIRM/BIMCO Joint Working Group

Revision History

 V#
 Descrip

 1.0
 First live

 1.1
 Draft up



Terms of Use

This Draft Standard on Software Maintenance of Shipboard Equipment (the Draft Standard) has been prepared by the Comité International Radio-Maritime (CIRM) and BIMCO Joint Working Group (JWG). Advice and information given in the Draft Standard is intended purely as guidance to be used at the user's own risk. No warranties or representations are given, nor is any duty of care or responsibility accepted by the Authors, their membership or employees of any person, firm, corporation or organisation (who or which has been in any way concerned with the furnishing of information or data, or the compilation or any translation, publishing, or supply of the Draft Standard of for the accuracy of any information or advice given in the Draft Standard or any omission from the Draft Standard or for any consequence whatsoever resulting directly or indirectly from compilance with, adoption of or reliance on guidance contained in the Draft Standard even if caused by a failure to exercise reasonable care on the part of any of the aforementioned parties.

CIRM/BIMCO Working Group est. 2014

Goal: develop standard before we are given one by the regulators

Work of the JWG has been transparent, IMO has been informed/updated

Group developed 14 drafts before producing "Version 1.1"



How will the standard improve the situation?

• Identifies stakeholders in SW maintenance, groups into Roles:

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Producer (e.g. company that manufacturers the ECDIS)

System Integrator (e.g. company that installs the integrated bridge)

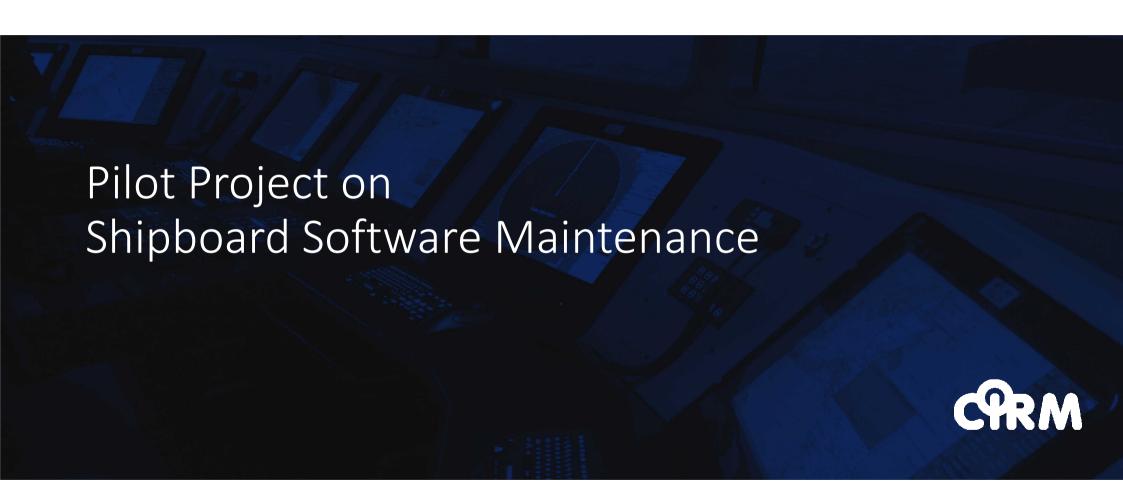
Data Provider (e.g. company that produces the ENCs)

Service (e.g. company responsible for servicing the ECDIS)

Shipowner (e.g. shipping company that owns the ship)
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- Assigns requirements to each of these Roles
- Fulfilling the requirements of this standard will take a major change in thinking by all stakeholders





Purpose

- Pilot Project will undertake a trial implementation of the Draft Standard to evaluate its *practicality* and *efficacy*
- Different stakeholders will perform software maintenance under real circumstances, in accordance with the Draft Standard
- Trial implementation dates: 1st January 30th June 2017



Participating companies

Shipowner Role	Producer Role	Service Role
BP Shipping	Furuno	Radio Holland
Maersk Line	Danelec Marine	
Emarat Marine	Sperry Marine	
	Kongsberg Maritime	
	MAN Diesel & Turbo	



Future work

- Results of the Pilot will be analysed and the standard amended accordingly
- Ultimate aim is to convert the Draft Standard into an international standard
- Should not require IMO regulation instead adoption will be driven by commercial pressure



