





SJÖFARTSLUNCH
CYBER RISK MANAGEMENT



Program

12.00 Status i frågan inom IMO och EU samt implementering av *Resolution MSC.428(98) – Maritime cyber risk management in safety management systems* – Johan Isaksson, Transportstyrelsen

12.20 Inledning och information om cyber risk management guidelines – Christina Palmén, Svensk Sjöfart

12.40 Exempel från rederier om hur man arbetar med frågan

- Sten Rosenqvist, Eckerö
- Donald Werner, Furetank

13.15 Frågor och diskussion

13.30 Slut





Inledning och information om cyber risk management guidelines

Christina Palmén, Svensk Sjöfart





SVENSK

SJÖFART

SWEDISH SHIPOWNERS' ASSOCIATION



Cyber risk management guidelines

3 mars 2020

Christina Palmén, Svensk Sjöfart



Cyber security

Cyber risk management



Cyber risk management and the safety management system


[IMO Resolution MSC.428\(98\)](#) makes clear that an approved SMS should take into account cyber risk management when meeting the objectives and functional requirements of the ISM Code.

The guidance provided in the [Guidelines on maritime cyber risk management \(MSC-FAL.1/Circ.3\)](#) provides high level recommendations regarding the elements of an appropriate approach to implementing cyber risk management.

The guidelines on cyber security onboard ships – Annex 2

The guidance in this annex is designed to provide the minimum measures that all companies should consider implementing so as to address cyber risk management in an approved SMS.

IMO Guidelines on maritime cyber risk management



INTERNATIONAL MARITIME ORGANIZATION

E


4 ALBERT EMBANKMENT
LONDON SE1 7SR
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC-FAL.1/Circ.3
5 July 2017

GUIDELINES ON MARITIME CYBER RISK MANAGEMENT

1. The Facilitation Committee, at its forty-first session (4 to 7 April 2017), and the Maritime Safety Committee, at its ninety-eighth session (7 to 16 June 2017), having considered the urgent need to raise awareness on cyber risk threats and vulnerabilities, approved the *Guidelines on maritime cyber risk management*, as set out in the annex.
2. The Guidelines provide high-level recommendations on maritime cyber risk management to safeguard shipping from current and emerging cyberthreats and vulnerabilities. The Guidelines also include functional elements that support effective cyber risk management.
3. Member Governments are invited to bring the contents of this circular to the attention of all stakeholders concerned.
4. This circular supersedes the interim guidelines contained in MSC.1/Circ.1526.

I:\CIRC\MSC-FAL\1\MSC-FAL 1-Circ 3.docx



The Guidelines on cyber security onboard ships

THE GUIDELINES ON

CYBER SECURITY ONBOARD SHIPS 



Produced and supported by
BIMCO, CLIA, ICS, INTERCARGO, INTERMANAGER, INTERTANKO, IUMI, OCIMF and WORLD SHIPPING COUNCIL







International Chamber of Shipping
Shaping the Future of Shipping



International Association of Dry Cargo Shipowners







IUMI International Union of Marine Insurance





WORLD SHIPPING COUNCIL
THE WORLD'S SHIP OWNERS

v3

Cyber Security Workbook for On Board Ship Use

Cyber Security Workbook for On Board Ship Use

1st Edition 2019





The Guidelines on cyber security onboard ships

THE GUIDELINES ON CYBER SECURITY ONBOARD SHIPS



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International
Chamber of Shipping
Shaping the Future of Shipping



International Association of Dry Cargo Shipowners



InterManager



INTERTANKO



IUMI
International
Union of
Marine Insurance

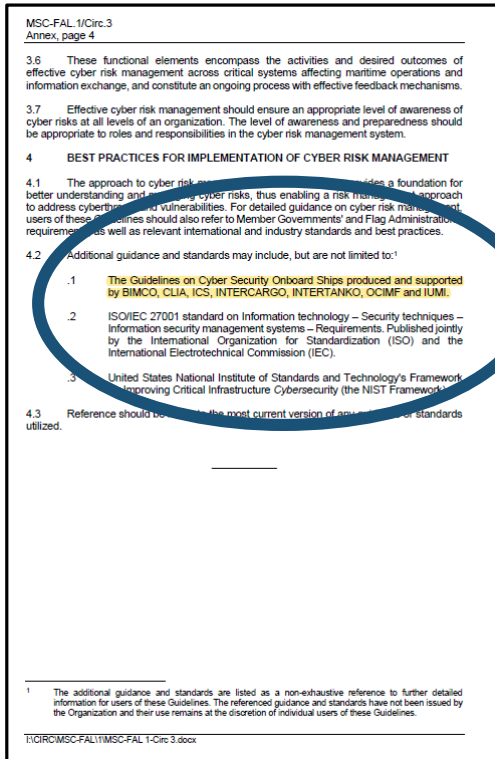


OCIMF



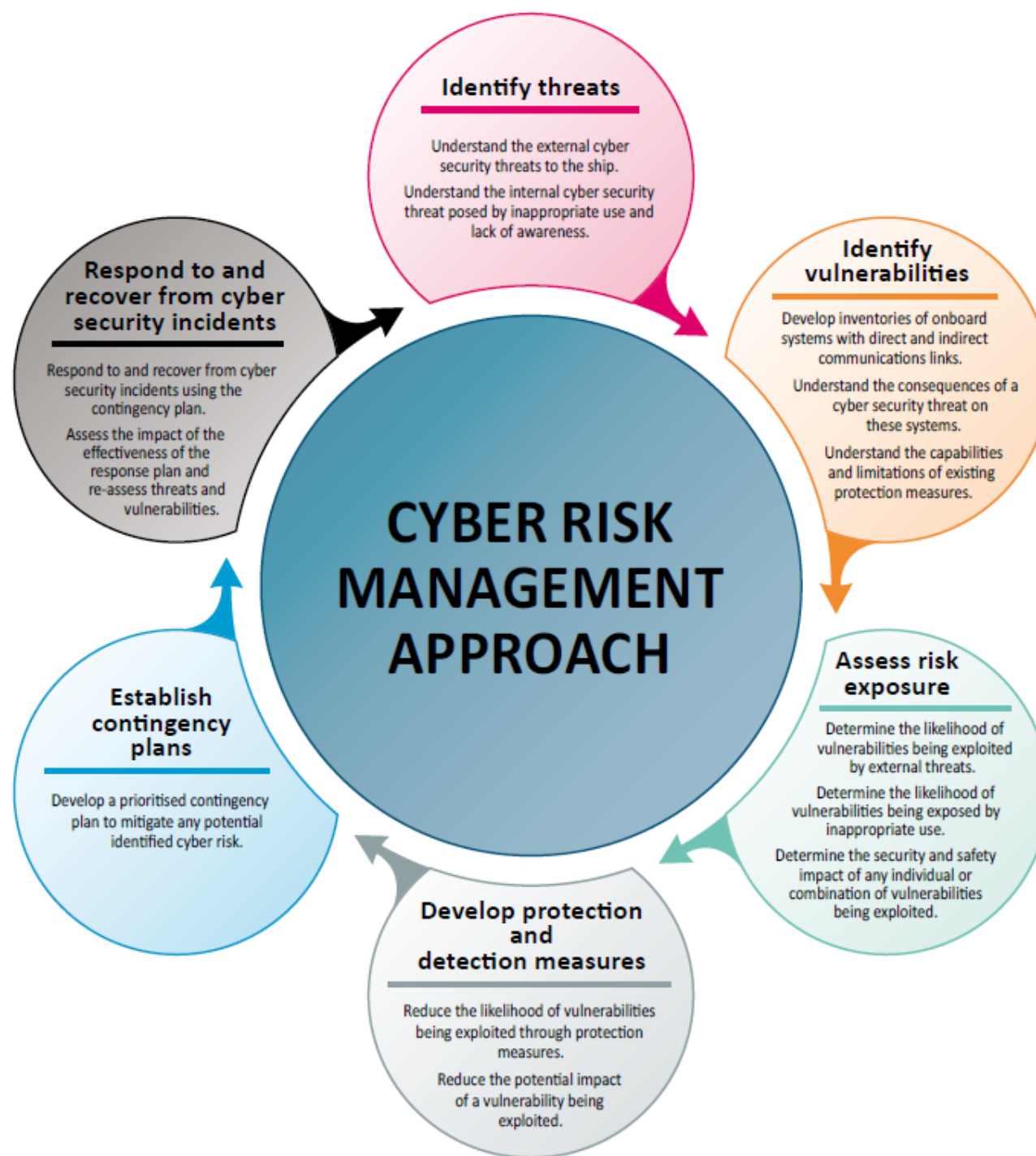
WORLD SHIPPING COUNCIL
PARTNERS IN TRUST

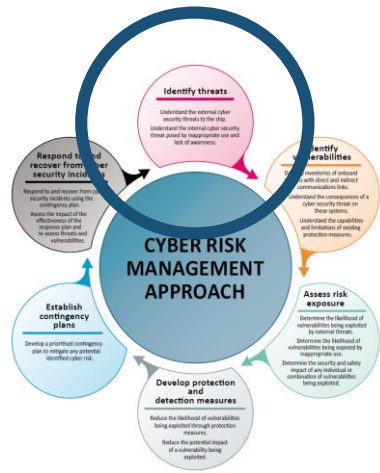
IMO Guidelines on maritime cyber risk management



4.2 Additional guidance and standards may include, but are not limited to:¹

- .1 The Guidelines on Cyber Security Onboard Ships produced and supported by BIMCO, CLIA, ICS, INTERCARGO, INTERTANKO, OCIMF and IUMI.
- .2 ISO/IEC 27001 standard on Information technology – Security techniques – Information security management systems – Requirements. Published jointly by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).
- .3 United States National Institute of Standards and Technology's Framework for Improving Critical Infrastructure Cybersecurity (the NIST Framework).





Identify threats

Understand the external cyber security threats to the ship.

Understand the internal cyber security threat posed by inappropriate use and lack of awareness.

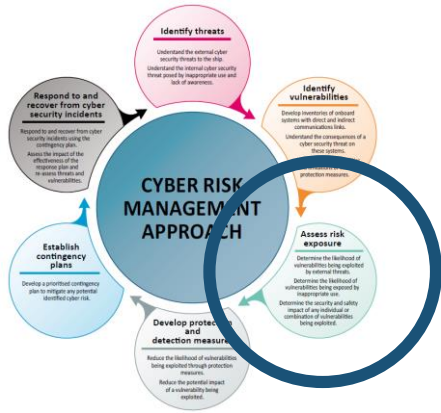


Identify vulnerabilities

Develop inventories of onboard systems with direct and indirect communications links.

Understand the consequences of a cyber security threat on these systems.

Understand the capabilities and limitations of existing protection measures.



Assess risk exposure

Determine the likelihood of vulnerabilities being exploited by external threats.

Determine the likelihood of vulnerabilities being exposed by inappropriate use.

Determine the security and safety impact of any individual or combination of vulnerabilities being exploited.



Develop protection and detection measures

Reduce the likelihood of vulnerabilities being exploited through protection measures.

Reduce the potential impact of a vulnerability being exploited.



Establish contingency plans

Develop a prioritised contingency plan to mitigate any potential identified cyber risk.



Respond to and recover from cyber security incidents

Respond to and recover from cyber security incidents using the contingency plan.

Assess the impact of the effectiveness of the response plan and re-assess threats and vulnerabilities.

The Guidelines on cyber security onboard ships



ANNEX 2 Cyber risk management and the safety management system

IMO Resolution MSC.428(98) makes clear that an approved SMS should take into account cyber risk management when meeting the objectives and functional requirements of the ISM Code. The guidance provided in the Guidelines on maritime cyber risk management (MSC-FAL.1/Circ.3) provides high level recommendations regarding the elements of an appropriate approach to implementing cyber risk management. The guidance in this annex is designed to provide the minimum measures that all companies should consider implementing so as to address cyber risk management in an approved SMS.

IMO Guidelines on maritime cyber risk management / The Guidelines on cyber security onboard ships – ANNEX 2

- IDENTIFY
- PROTECT
- DETECT
- RESPOND
- RECOVERY

IDENTIFY²⁰

Roles and responsibilities ²¹	
Action	Remarks
ISM Code: 3.2 Industry Guidelines: 1.1 Update the safety and environment protection policy to include reference to the risk posed by unmitigated cyber risks.	An updated safety and environment protection policy should demonstrate: <ul style="list-style-type: none"> ■ a commitment to manage cyber risks as part of the overall approach to safety management (including safety culture) and protection of the environment ■ an understanding that CRM has both safety and security aspects, but the emphasis is on managing the safety risks introduced by OT, IT and networks ■ an understanding that without appropriate technical and procedural risk protection and control measures, OT is vulnerable to disruption affecting the safe operation of a ship and protection of the environment. Nothing in the updated policy should suggest that CRM is given any more or less attention than any other risks identified by the company.
ISM Code: 3.3 Industry Guidelines: 1.1 Update the responsibility and authority information provided in the SMS to include appropriate allocation of responsibility and authority for cyber risk management (CRM).	In general, IT personnel should understand potential vulnerabilities in computer-based systems and know the appropriate technical and procedural protection measures to help ensure the availability and integrity of systems and data. Operational and technical personnel should generally understand the safety and environmental impacts of disruption to critical systems ²² onboard ships and are responsible for the SMS. Allocation of responsibility and authority may need to be updated to enable CRM. This should include: <ul style="list-style-type: none"> ■ allocation of responsibilities and authorities which encourage cooperation between IT personnel (which may be provided by a third party) and the company's operational and technical personnel ■ incorporating compliance with cyber risk management policies and procedures into the existing responsibility and authority of the Master.

Cyber Security Workbook for On Board Ship Use

- **1st Edition 2019**



3 punkter att ta med

- 1 januari 2021
- [Guidelines on Maritime Cyber Risk Management \(MSC-FAL/Circ.3\)](#)
- [The guidelines on cyber security onboard ships - Annex 2!](#)





Exempel från rederier

Sten Rosenqvist, Eckerö



Rederi Ab Eckerö

**Cyber Security
Risk Management**

Sten Rosenqvist, Säkerhetschef DPA/CSO

Eckerös 5 affärsområden



ECKERÖ€LINE

Eckerö Line bedriver passagerar- och lasttrafik mellan Helsingfors och Tallinn.



BIRKA CRUISES

Birka Cruises bedriver kryssningstrafik mellan Stockholm och Mariehamn.



ECKERÖ€LINJEN

Eckerö Linjen bedriver passagerartrafik mellan Grisslehamn och Eckerö samt erbjuder olika turism- och reseprodukter.

WILLIAMS

Williams Buss bedriver linje- och chartertrafik.



ECKERÖ€SHIPPING

Eckerö Shipping bedriver ro-ro trafik med inriktning på exportindustrin

Rederiaktiebolaget
ECKERÖ €

Koncernstaber & support

Ekonomi & Finans

IT System

Personal

Inköp och Logistik

Fleet Management

Fartygsflotta



M/S Finlandia

Byggd :2001, Daewoo Shipbuilding & Heavy Machinery Ltd., Sydkorea
Längd: 175 m Bredd: 27,6 m. Kapacitet: 2.080 passagerare.

Frakt: 610 bilar (1808 fraktmeter). [Helsingfors – Tallinn.](#)



M/S Eckerö

Byggd :1979, Aalborg Værft A/S, Aalborg, Danmark
Längd: 121 m Bredd: 24,5 m. Fart: 20 knop. Kapacitet: 1.630 passagerare.

Frakt: 265 bilar (515 fraktmeter).

I trafik för Eckerö Linjen Ab, [Eckerö – Grisslehamn.](#)



M/S Birka

Byggd: 2004, Aker Finnyards Oy, Raumo, Finland
Längd: 177 m. Bredd: 28 m. Fart: 21 knop.

Kapacitet: 1.800 passagerare, 715 hytter/1.800 bäddar

I trafik för Birka Cruises AB, [Mariehamn – Stockholm.](#)



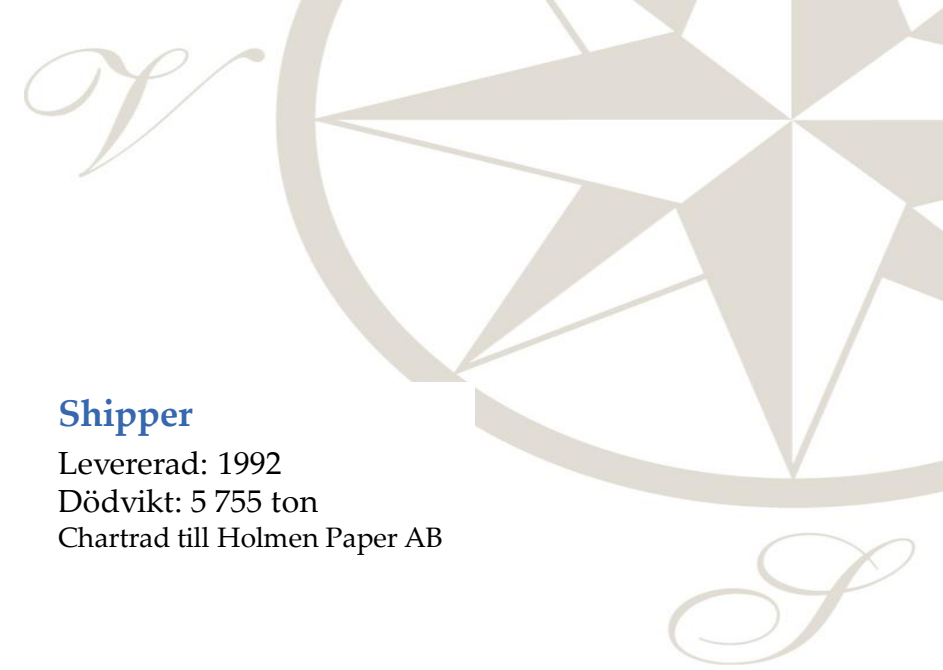
M/S Finbo Cargo

Byggd: 2000, Astilleros Espanoles S.A. (AESAs), Sevilla, Spanien

Längd: 180 m Bredd: 25 m. Fart: 22 knop. Kapacitet: 366 passagerare.

Frakt: 2000 fraktmeter. [Helsingfors – Tallinn.](#)

Ro-Ro Flotta



Exporter

Levererad: 1991
Dödvikt: 5 765 ton
Chartrad till Holmen Paper AB



Shipper

Levererad: 1992
Dödvikt: 5 755 ton
Chartrad till Holmen Paper AB



Transporter

Levererad: 1992
Dödvikt: 5 387 ton
Chartrad till DFDS

Cyber Risk Management

Jaha, vad är det här nu då!

- YK2
- MRV
- IHM
- GDPR

Och nu:

MSC-FAL.1/Circ.3 Guidelines on Maritime Cyber Risk Management

Men det här gör vi ju redan?

Myndigheter och klass

Flaggadministrationer

- Transportstyrelsen, SVERIGE
- Transport- och kommunikationsverket, FINLAND



Klassningssällskap

- Bureau Veritas
- DNVGL
- Lloyds Register

Hamnstatsmyndigheter

- Transportstyrelsen, SVERIGE
- Transport- och kommunikationsverket, FINLAND
- Estonian Maritime administration, ESTLAND



	REDERI- & SÄKERHETSMANUAL			 Datum: 2020-01-10
	1. Rederiets säkerhetsmanualer	Version: 6	Datum: 2020-01-10	
	1.2 ISM dokumentation	Förf: BGD	Page: 1 (3)	
	Sidan berör följande: <input type="checkbox"/> Kontor <input type="checkbox"/> M/S Eckerö <input type="checkbox"/> M/S Birka			

1.2 ISM DOKUMENTATION

REDERIETS SÄKERHETSORGANISATIONSSYSTEM (SMS)

COMPANY	PAX SHIPS	CARGO SHIPS
COMPANY & SAFETY MANUAL Doc. Mgmt. no: 210.000 Manual describing the company's safety and environmental-protection policy, goals and company organization, instructions/procedures to ensure safe operation, responsibilities and authority, reporting, audits and review.	COMPANY & SAFETY MANUAL Doc. Mgmt. no: 210.000 Manual describing the company's safety and environmental-protection policy, goals and company organization, instructions/procedures to ensure safe operation, responsibilities and authority, reporting, audits and review.	COMPANY & SAFETY MANUAL Doc. Mgmt. no: 210.000 Manual describing the company's safety and environmental-protection policy, goals and company organization, instructions/procedures to ensure safe operation, responsibilities and authority, reporting, audits and review.
EMERGENCY CONTINGENCY MANUAL Doc. Mgmt. no: 210.005 Manual which describes procedures to prepare for, and respond to emergency, critical and specific situations including alerting routines. - ISM Code chapter 8 -	EMERGENCY CONTINGENCY MANUAL Doc. Mgmt. no: 210.005 Manual which describes procedures to prepare for, and respond to emergency, critical and specific situations including alerting routines. - ISM Code chapter 8 -	EMERGENCY CONTINGENCY MANUAL Doc. Mgmt. no: 210.005 Manual which describes procedures to prepare for, and respond to emergency, critical and specific situations including alerting routines. - ISM Code chapter 8 -
SAFETY TRAINING MANUAL FIRE TRAINING MANUAL Doc. Mgmt. no: 210.010 Vessels instructions regarding safety equipment	SAFETY TRAINING MANUAL FIRE TRAINING MANUAL Doc. Mgmt. no: 210.010 Vessels instructions regarding safety equipment	SAFETY TRAINING MANUAL FIRE TRAINING MANUAL Doc. Mgmt. no: 210.010 Vessels instructions regarding safety equipment
CHECKLIST BINDER Doc. Mgmt. no: 210.015 Ship specific checklists for safety and operational routines	CHECKLIST BINDER Doc. Mgmt. no: 210.015 Ship specific checklists for safety and operational routines	CHECKLIST BINDER Doc. Mgmt. no: 210.015 Ship specific checklists for safety and operational routines
DOCUMENT MANAGEMENT SYSTEM 00-Book (departments filing system) Doc. Mgmt. no: 210.020 Binder which in detail describes the department filing and documentation of operational routines, and instructions for handling of above.	DOCUMENT MANAGEMENT SYSTEM 00-Book (vessel filing system) Doc. Mgmt. no: 210.020 Binder which in detail describes the department filing and documentation of operational routines, and instructions for handling of above.	DOCUMENT MANAGEMENT SYSTEM 00-Book (vessel filing system) Doc. Mgmt. no: 210.020 Binder which in detail describes the department filing and documentation of operational routines, and instructions for handling of above.
SOPEP MANUAL* Doc. Mgmt. no: 210.030	SOPEP MANUAL* Doc. Mgmt. no: 210.030	SOPEP MANUAL* Doc. Mgmt. no: 210.030
CARGO SECURING MANUAL* Doc. Mgmt. no: 210.035	CARGO SECURING MANUAL* Doc. Mgmt. no: 210.035	CARGO SECURING MANUAL* Doc. Mgmt. no: 210.035
BALLAST WATER MANAGEMENT PLAN* Doc. Mgmt. no: 210.050	BALLAST WATER MANAGEMENT PLAN* Doc. Mgmt. no: 210.050	BALLAST WATER MANAGEMENT PLAN* Doc. Mgmt. no: 210.050
EMERGENCY TOWING BOOKLET Doc. Mgmt. no: 210.045	EMERGENCY TOWING BOOKLET Doc. Mgmt. no: 210.045	EMERGENCY TOWING BOOKLET Doc. Mgmt. no: 210.045
ENVIRONMENT MANAGEMENT MANUAL including SEEMP Doc. Mgmt. no: 225 and 230	ENVIRONMENT MANAGEMENT MANUAL including SEEMP Doc. Mgmt. no: 225 and 230	ENVIRONMENT MANAGEMENT MANUAL including SEEMP Doc. Mgmt. no: 225 and 230
HULL OPENING OPERATING AND MAINTENANCE MANUAL Doc. Mgmt. no: 210.040	HULL OPENING OPERATING AND MAINTENANCE MANUAL Doc. Mgmt. no: 210.040	HULL OPENING OPERATING AND MAINTENANCE MANUAL Doc. Mgmt. no: 210.040
SEARCH AND RESCUE CO-OPERATION PLAN Doc. Mgmt. no: 210.025	SEARCH AND RESCUE CO-OPERATION PLAN Doc. Mgmt. no: 210.025	GARBAGE MANAGEMENT PLAN
Makers instruction and operating manuals Doc. Mgmt. no: 155 and 160	Makers instruction and operating manuals Doc. Mgmt. no: 155 and 160	Makers instruction and operating manuals Doc. Mgmt. no: 155 and 160
Drawings and plans Doc. Mgmt. no: 160	Ships drawings and plans Doc. Mgmt. no: 160	Ships drawings and plans Doc. Mgmt. no: 160

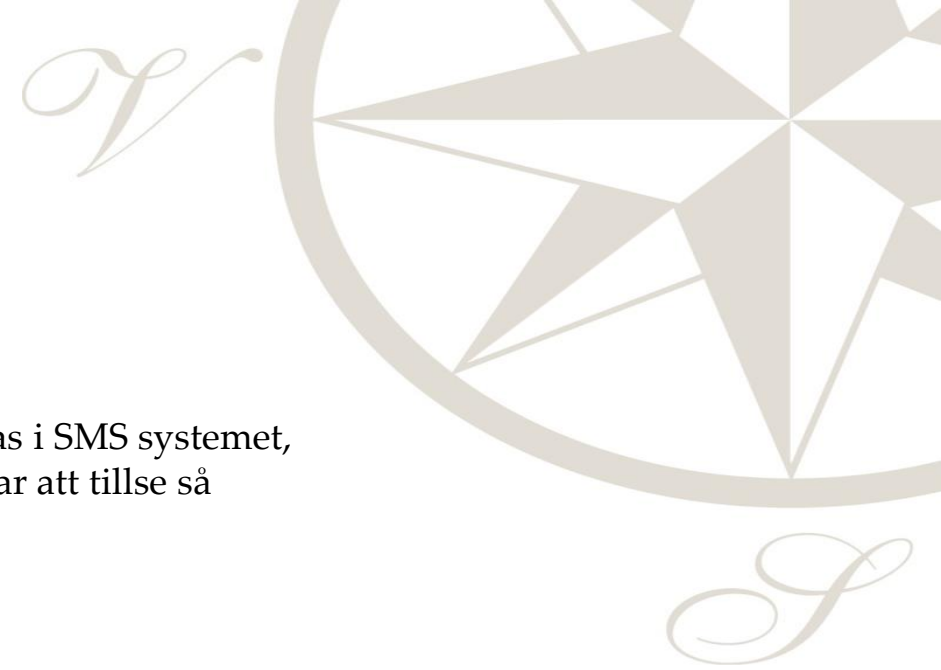
* Manual which is to be approved by Flag or RO, no alterations or revisions shall be made without approval.

All other SMS documentation, except makers instructions/operating manuals and drawings, shall be "controlled documents" which means that it is approved and dated as described in chapter 1.3 Revision of manuals.

Ovanstående beskriver schematiskt vilka pärmar som ingår i säkerhetsorganisationssystemet, vilket styr organisationens verksamhet. Rutor med bred ram ingår i rederiets ISM dokumentationssystem, de övriga anger stödmanualer för att beskriva helheten i verksamheten.

Safety Mgmt System

Fördelar



ISM:

När man tänker efter är det helt logisk att detta implementeras i SMS systemet, ger BFH och övriga befattningshavare befogenheter och ansvar att tillse så rutinerna implementeras och efterföljs

Drift/tekniskt management:

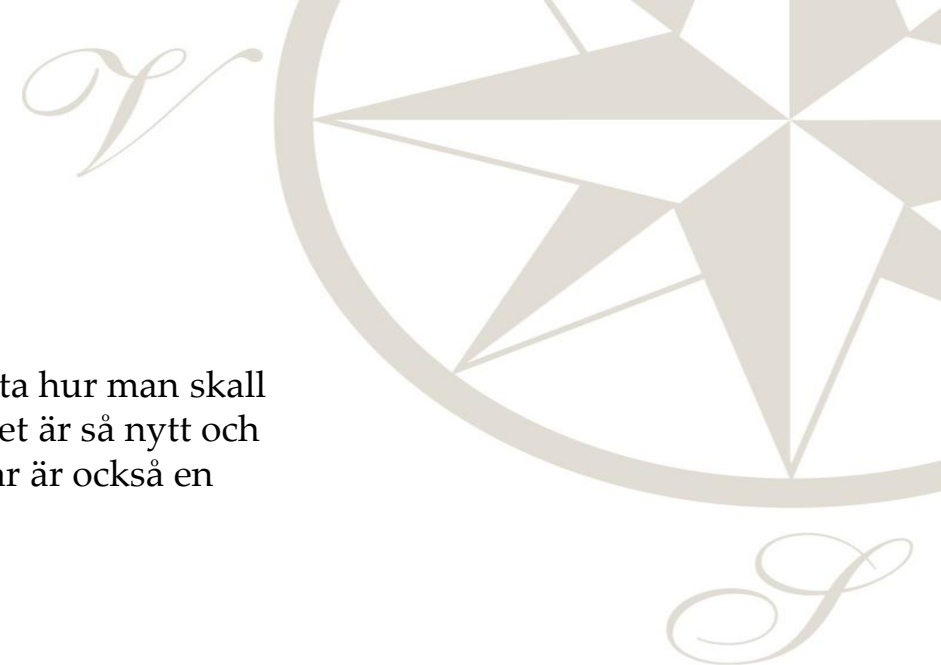
Ger mer enhetliga och säkrare rutiner då nya system sätts ombord eller existerande system uppgraderas.

IS/IT:

Mer befogenheter och möjligheter att styra upp installationer så det görs enligt säkra rutiner med avseende på skyddsmekanismer.

I och med ISM implementeringen ger det även IT avdelningen befogenheter att ge ut info och direktiv som förbättrar IT skyddet.

Nackdelar



ISM:

Formuleringen av ISM texter; känns svårt och trevande att veta hur man skall formulera rutiner, processer, tillstånd i praktisk text pga att det är så nytt och begränsad tillgång till existerande information. Avgränsningar är också en utmaning.

Drift/tekniskt management:

Kan tänkas att driftsmässiga störningar kan leda till mer tröghet i processerna för att åtgärda problem som uppstår.

IS/IT:

Ansvar för samtliga medarbetare för att verkligen följa rutiner och känna till interna regler gällande säkerhetsaspekter.

Systembeställare både iland och ombord måste känna till rutinerna och ta reda på vad nya system kräver för att fungera i våra system, kräver mer arbete i planerings- och upphandlingsprocessen.

Leder oundvikligen till ett visst merarbete för att kartlägga och system och applikationer samt genomföra riskbedömningar.

Vad har vi redan på plats?

ISM:

Inom organisationen och ombord finns en vana att ta till sig nya rutiner och regler genom ISM/SMS systemet. Även kännedomen om att nya rutiner måste implementeras samt granskas utifrån av olika myndigheter och genom interna/externa kontrollmekanismer

IS/IT:

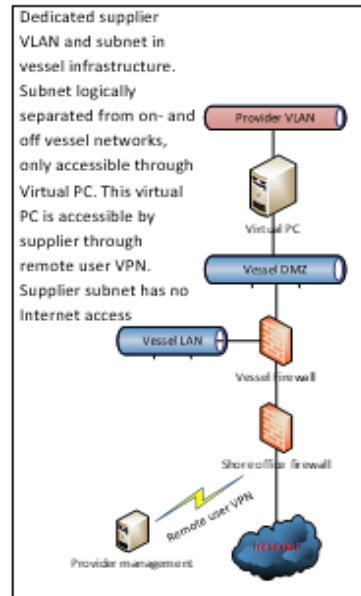
Till stor del finns redan skyddsmekanismerna på plats såsom

- Antivirus system
- Brandväggar
- Lösenordshantering

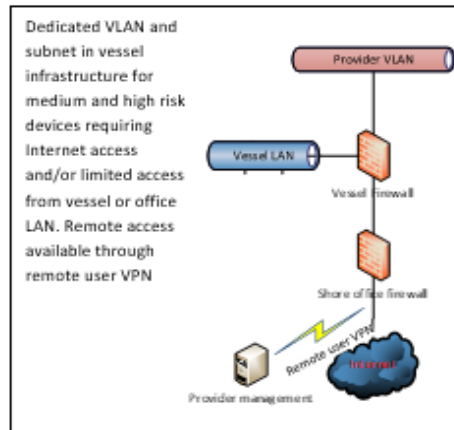
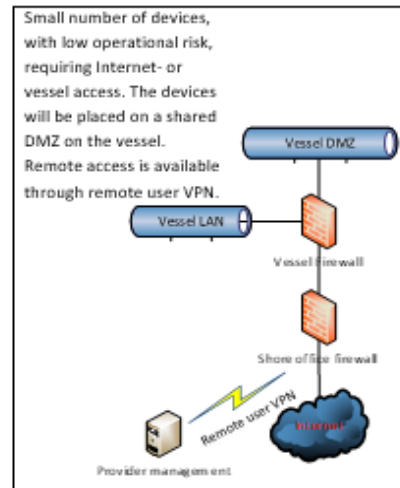
Som en meny på en restaurang

System name			
Supplier/Manufacturer			
Is the system remote controlled?	<input type="checkbox"/> Yes	How?	
System requires Internet connectivity	<input type="checkbox"/> Yes	Estimated monthly data usage	
Which services on the Internet are required?			
Internet connection availability requirements (SLA)			
How critical is the system to the operation of the vessel?	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low
Eckerö contact			
Other system access requirements			

Below are the network connectivity options available to supplier provided equipment.



if the supplier chooses to provide Internet connectivity through a dedicated connection, for example mobile network, it is mandatory the supplier takes necessary measures to prevent unauthorized access to the system.



Menyn:

En enkel blankett som är tänkt att användas då nya system skall läggas till ombord.

Den ger också användarna en enkel överskådlig bild över hur applikationer och system är uppbyggda i förhållande till de olika skyddsmekanismerna.

Vad återstår för att vi skall känna oss redo för nästa DoC besiktning?

ISM:

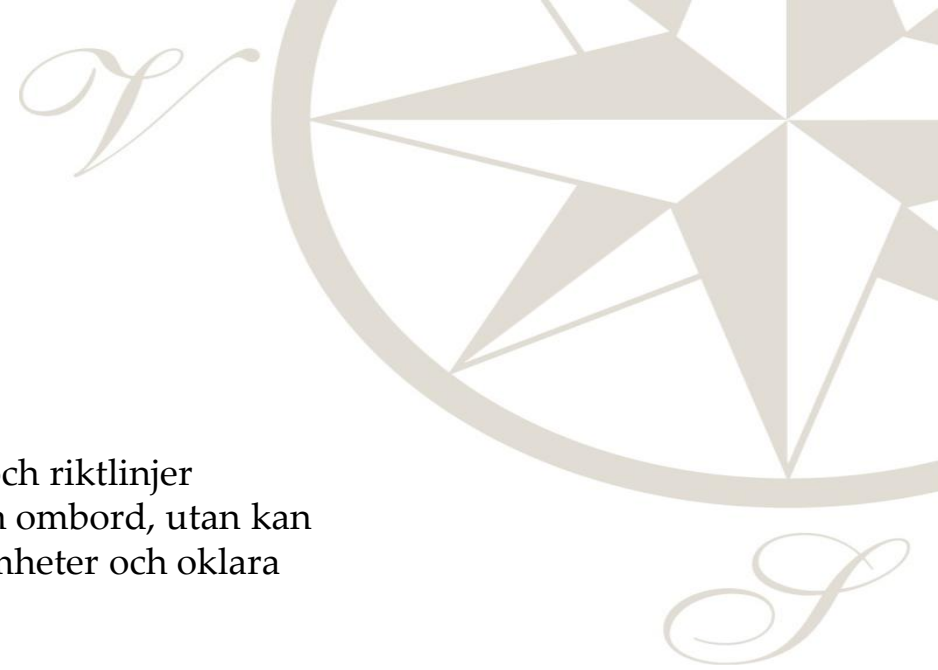
Formulera text, riktlinjer och regler till ISM/SMS systemet. Överens om att hålla det på en rimlig nivå både vad gäller omfattningen samt språkligt för att personalen skall kunna förstå och ta in informationen.

IS/IT:

Information om implementering och cyber risk management i allmänhet inom landorganisationen samt till fartygen. Kan uppnås genom tex:

- Intranät
- Utbildningar
- Direktiv och information

Erfarenheter



Information om de nya reglerna

Om vi klarar av att ge ut tydlig information och klara regler och riktlinjer upplevs detta inte som något negativt av användare iland och ombord, utan kan förenkla det dagliga arbetet genom att reda ut många tveksamheter och oklara saker i den dagliga verksamheten idag.

Praktiska enkla åtgärder som behöver förtydligas

USB minnen

Externa leverantörer som ansluter sig på våra system

Utmaning: Dockning av fartyg



**Status i frågan inom IMO och EU samt
implementering av *Resolution MSC.428(98)* –
*Maritime cyber risk management in safety
management systems***

Johan Isaksson, Transportstyrelsen



Cyber risk management inom IMO och EU

Svensk Sjöfart 3 Mars, 2020



from
2017

**The
Guardian**

Cyber risk management

- Bakgrund – ISM och ISPS
- EU:s arbete – ENISA
- ✓ Nytt direktiv ”Cybersecurity Act” – 2019/881 (27 juni 2019)
- ✓ Nytt mandat för ENISA
- ✓ Krav på Certifiering av ICT produkter

IMO res. MSC.428(98)

- Resolution och riktlinjer
- ✓ Implementering – Genom ISM
<https://transportstyrelsen.se/sv/sjofart/Fartyg/sjosakerhetsarbete/aktuell-information/>
- ✓ Tillsyn – Systemtillsyn genom sedvanlig auditering vid certifiering
 - Senast genomfört som del av rederiets SMS vid första årliga verifieringen av rederiets DOC efter 1 januari 2021

NIS (EUROPAPARLAMENTETS OCH RÅDETS DIREKTIV (EU) 2016/1148)

- Tillämpning och omfattning
- MSB och TS
- Rederiers roll
- TS tillsyn inom NIS

Tack för uppmärksamheten!

Frågor?



Tack!





Missa inte Svensk Sjöfarts öppna
årsmötesseminarium 23 april!

