



Build a Secure and Reliable Onboard System for Smart Ships

Building a smart ship makes onboard operations visible for shipowners. It provides instant data from onboard systems to the control center for optimized operational efficiency, including optimizing fuel usage and performing preventive maintenance. Connecting onboard systems, though, raises security and cyberthreat concerns. The severity of insufficient cybersecurity is highlighted by incidents like the ransomware attack on DNV's ShipManager servers.¹ To mitigate security risks, IACS published the UR E26 and E27 to regulate their members on enhancing the cyber-resilience of the ship and the onboard systems and equipment. For shipowners to reap the rewards of efficient smart ship operations, shipbuilders and system integrators need to bolster cyber-resilience, leading to a safer and cleaner maritime industry.

Challenges

Increasing Cyberattacks in the Maritime Business

Smart ships often carry valuable cargo and sensitive information, making them attractive targets for cybercriminals. Therefore, strong OT cybersecurity is crucial for protecting ship systems and data during transmission between smart ships and distant control centers.

International Regulations for Enhancing Cyber-resilience

Since July 2024, meeting the UR E26 and UR E27 standards for ship and onboard equipment cybersecurity has been mandatory. IACS members must uphold these standards, bolstering cyber-resilience to lessen security threats and improve maritime safety.

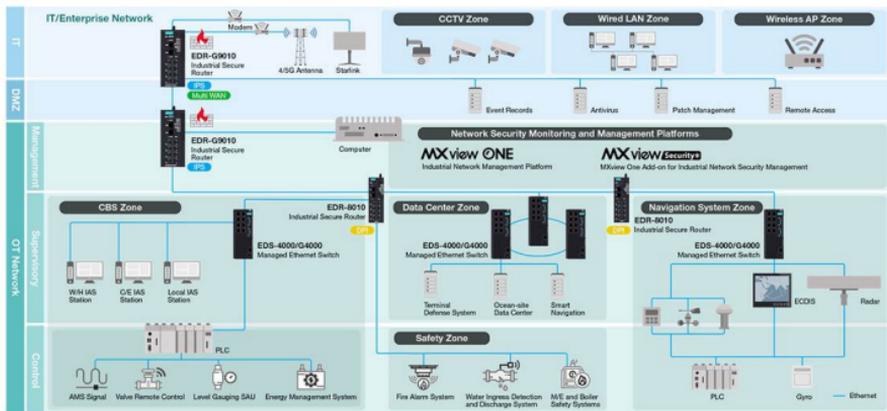
Increasing Data Exchange Between Onboard and Remote Sites

Optimizing operational efficiency relies on real-time data exchange between onboard and remote sites. Deploying a robust and reliable network is critical for seamless data communication in smart ships, enabling real-time onboard and remote monitoring.

¹ [Cyber-attack on ShipManager servers – update](#)

How Moxa's Secure Networking Solutions Help

Our secure networking portfolio futureproofs your onboard communication systems with robust security and reliable performance. Discover how our solutions improve your onboard communication systems, building secure and reliable smart ships.



DMZ



EDR-G9010 Series Secure Routers

- Act as boundary firewalls and segment a DMZ area to allow secure information exchange
- Support IPS and virtual patching for vulnerable system protection
- Type-approved for the security capabilities of DNV SP2, IACS UR E27 Rev.1, and IEC 61162-460 Ed.3.0, and can operate as a 460-gateway, forwarder, and switch
- Provide multiple-WAN and supports two 2.5GbE ports for reliable data transmissions

OT Network

Management



MXview One Network Management Software

- Visualizes our managed switches and secure routers on one centralized management platform
- Allows users to receive customizable notifications when abnormal activity occurs on a network
- Supports a security add-on tool to manage firewall policies and provides at-a-glance dashboard for network security monitoring

OT Network

Supervisory

Control



EDR-8010 Series Secure Routers

- Act as boundary firewalls and create network segmentations between OT systems
- Support OT-centric DPI for traffic filtering
- Type-approved for the security capabilities of DNV SP2, IACS UR E27 Rev.1, and IEC 61162-460 Ed.3.0, and can operate as a 460-gateway, forwarder, and switch
- Support redundancy protocols, including Turbo Ring, Turbo Chain, and VRRP, to ensure fast network recovery



EDS-4000/G4000 Series Secure Managed Switches

- Support VLANs that virtually isolate different system zones, ensuring only trusted communications through controlled network access and traffic flow
- Support security features including SSL/SSH, IEEE 802.1X, ACL, and DHCP Snooping to ensure secure communication, granular traffic filtering, and trusted network access
- Type-approved for the security capabilities of DNV SP2, IACS UR E27 Rev.1, and IEC 61162-460 Ed.3.0, and can operate as a 460-switch
- Support redundancy protocols, including RSTP/STP, MRP Turbo Ring, and Turbo Chain, to maintain continuous network service

For more information, visit Moxa's [Secure Networking Microsite](#).

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