IEC 63173-2

Edition 1.0 2022-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Maritime navigation and radiocommunication equipment and systems – Data interfaces – Part 2: Secure communication between ship and shore (SECOM)

Matériels et systèmes de navigation et de radiocommunication maritimes – Interfaces de données – Partie 2: Communications sécurisées entre le navire et la terre (SECOM)

IEC 63173-2:2022-05 (en-fr)

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MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DATA INTERFACES –

Part 2: Secure communication between ship and shore (SECOM)

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The text of this International Standard is based on the following documents:

Draft	Report on voting
80/1030/FDIS	80/1039/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63173 series, published under the general *Maritime navigation and radiocommunication equipment and systems – Data interfaces*, can be found on the IEC website.

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INTRODUCTION

E-navigation has been defined as the means of providing electronic information in a harmonized way, and maritime services have been specified by the International Maritime Organization (IMO). The maritime services are operational services for actors both ashore and onboard. To make the maritime services interoperable between different actors and systems from different manufactures standards, specifications and guidelines in several layers are required, for example technical services and data/product formats. Technical services comprises a set of technical solutions and communications means to provide a maritime service. IMO's e-navigation strategy implementation plan (SIP) requires that all maritime services are IHO S-100 conformant as a baseline. Further, IEC is expected to implement the details as outlined in the SIP.

Secure communication between ship and shore (SECOM) provides standards for secure data exchange with technical services. Further, it contains a technical service interface design that is in accordance with the service guidelines and templates defined by IALA and partly included in IHO S-100.

SECOM specifies service interfaces (APIs) for data exchange, data protection measures to enable secure communication and interfaces for service discoverability. SECOM is applicable for IHO S-100 based products but also other data (payload) formats are supported, i.e. SECOM is generally independent of which data type is exchanged.

The standardisation of a common service interface for data exchange will enable wider technical interoperability where the same service interface can be used for exchanging information regardless of its operational use.

Accordingly, the purpose of SECOM is to:

- facilitate standardized information exchange of, for example, IHO S-100 based products part of maritime services such as route plans, nautical chart updates and navigational warnings;
- facilitate interoperability between maritime IT systems;
- reduce the need to support many different (proprietary) service designs;
- utilize the benefits of service oriented architecture in maritime communication, for example to enable ship systems to interact with port systems on the first call to a specific port.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DATA INTERFACES –

Part 2: Secure communication between ship and shore (SECOM)

1 Scope

The scope of SECOM includes interfaces (APIs) for data exchange (information services), information security measures to enable secure communication and interfaces for service discoverability. SECOM provides technical interoperability, where the same service interface is used for exchanging the information regardless of its operational use, up to the level of exchanging information securely online. Although designed for IHO S-100 based products, SECOM is technically payload agnostic and applicable also for other types of data.

Communication between SECOM information services for data exchange relies on IP based web services. The "last mile" links between a SECOM information service and the end-user application is not defined in this document, thus the communication technology between the vendor API and a ship/shore system can be non-IP based as well as IP based. The informative Annex D describes one such implementation of this. This allows different solutions between the service and shore/ship’s system/applications.

SECOM does not define physical layer or link layer for transport of data between SECOM information services, but requires that the transport supports IP communication. SECOM is applicable for both public (governmental) and private (business) services. SECOM is applicable for ship-shore and shore-ship communication, and can be used for ship-ship communication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IHO S-100:2018, *IHO Universal Hydrographic Data Model, ed. 4.0.0*

RFC 2315, *PKCS #7: Cryptographic Message Syntax*

RFC 2459, *Internet X.509 Public-key infrastructure and attribute certificate frameworks*

RFC 2818, *HTTP Over TLS (2000)*

RFC 2986, *PKCS #10: Certification Request Syntax Specification*

RFC 4122, *A Universally Unique IDentifier (UUID) URN Namespace*

RFC 5246, *TLS version 1.2 (2008)*

RFC 5280, *Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile*

RFC 6960, *X.509 Internet Public Key Infrastructure, Online Certificate Status Protocol – OCSP*