BSI Standards Publication

Ships and marine technology — General requirements for the asynchronous time-insensitive shipshore data transmission

National foreword

This British Standard is the UK implementation of ISO 23807:2023.

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Sharing data between ships and the shore to ensure the safe and efficient operation of ships is becoming increasingly common.

Progress has been made in establishing data sharing between ships and the shore, related to ports, cargo and shipping routes. This includes the development of and discussions around standards related to Maritime Single Window and e-Navigation, which help to share some stylized data safely and in a timely manner between ships and shore.

On the other hand, the ship-shore communication environment is still narrower than those on land, and its connection is unstable. Therefore, a method for stably and efficiently sharing files of any format with a relatively large file size, such as various data and image files used in ship operation business applications, between ships and shore has not yet been standardized.

For example, in ship operations, onboard and on-shore application users determine the timing of data transmission and reception in relation to the connection status and communication quality of ship-shore communication each time, and perform data retransmission processing independently for each application.

In order to further promote the safe and efficient operation of ships, it is increasingly important to be able to send and receive files between ships and shore in a stable and efficient manner asynchronously without being affected by the ship-shore communication status.

In this document, asynchronous communication means the communication and/or application processing perspective, such as time-insensitive data transmission for non-real-time applications where the timing of the data generating and consuming can be different.

Although ISO 19847 and ISO 19848 provide standardized processes for efficient collection and storage of data for ship equipment systems, the method of asynchronously transmitting and receiving a large amount of ship equipment data accumulated on board between ships and shore has not been standardized yet. In order to promote shore support for ship operation and maintenance of onboard equipment systems, there is a need for a stable and efficient method for transmitting and receiving such onboard field data asynchronously between ships and shore.

This document specifies the functional requirements but does not intend to specify technical protocols.

See Annex A for more information on the correlation between the different relevant standards.

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INTERNATIONAL STANDARD ISO 23807:2023

Ships and marine technology — General requirements for the asynchronous time-insensitive shipshore data transmission

1 Scope

This document describes the requirements involved in ship to shore data communication between the shipboard data servers and the on-shore data servers. It provides information on:

— asynchronous communication;

— a method to measure end-to-end communication quality;

— transport integrity;

— transport security (e.g. encryption, authentication and authorization);

— management of data transmission (e.g. prioritization, logging, carrier awareness/management);

— communication optimization (e.g. deduplication, compression, resume, multiplexing);

— compliance with the data communication protocols, including but not limited to ISO 19847.

This document does not cover:

— the security of the data producer/consumer (e.g. identity management);

— communication equipment requirements;

— carrier performance requirements (e.g. bandwidth and latency).

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.

ISO/IEC 20922, *Information technology — Message Queuing Telemetry Transport (MQTT) v3.1.1*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
asynchronous communication
time-insensitive data transmission for onboard applications that transmit ship data and/or non-real-time applications where the timing of the data generating and consuming can be different

Note 1 to entry: This definition is not from the data protocol perspective.