Appendix Revisions

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**IALA Guideline on**

**Machine-to-Machine Interface within Common Shore-based System (CSS)**

**[Working towards] Edition No. 1**

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**[Initial Version]**

Revisions to this Appendix are to be noted in the table prior to the issue of a revised document.

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| **Date** | **Page / Section Revised** | **Requirement for Revision** |
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Guideline on

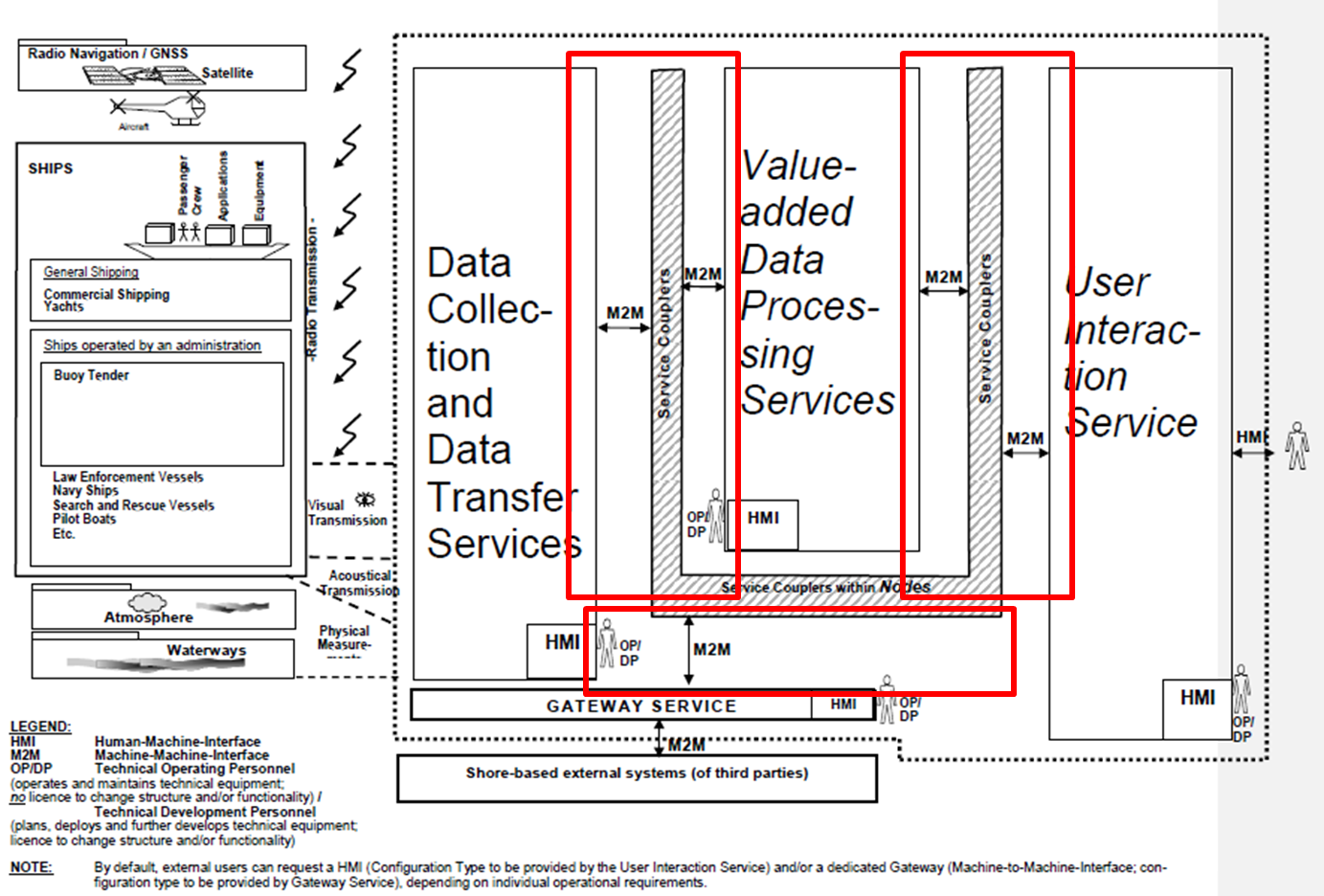
Machine-to-Machine Interface within

Common Shore-based System (CSS)

This guideline contains interfaces between machines, systems, and services in Common Shore-based system architecture. This also security some issues to provide safe and secure interfaces among them machine-to-machine interface.

# Scope

This Machine-to-Machine interface should be provided between “Data collection and Data transfer Services” and “Value-added Data Processing Services”, “User Interaction Services” and “Gateway Services”.



# Overview

Machine-to-Machine interface is defined as physical interface, network interface, service interface, maritime data exchange interface, service specific interface, operation and management and security. The relationship between OSI 7 layer and M2M interface is shown in Figure 1.

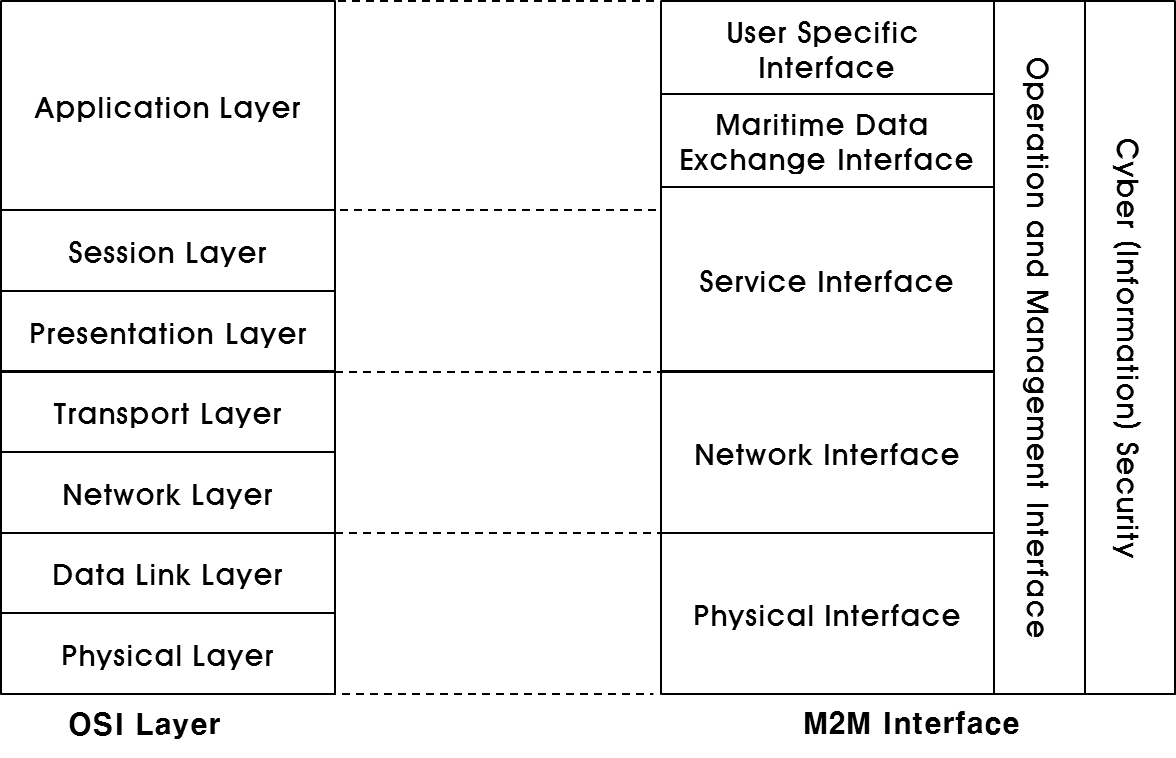


Figure . Relationship between OSI 7 layer and M2M interface

# Physical Interface

Physical interface represents physical connections for the communication between two different machines such as serial lines, Ethernet,…, etc.

## Network type

* wired
* wireless

## Topology Model

* Star Model : 1:1 physical connection between device, systems and service.
* Ring Model :
* Bus model : Shared a communication infrastructure

# Network interface

Network interface provides an mechanism to transport data over the networks.

## Addressing

* TBD

## Intra-network interface

Network interface represents an network protocol interface to communicate with each services. This includes TCP/IP protocols, IEC 61162-1/NMEA 0183, or IEC 61162-3/NMEA 2000.

* switch
* Router
* Gateway service
* TBD

## Gateway (WAN)

When a network is connected with WAN networks including Internet, it is required to provide a gateway to external CSS components.

## Data delivery

* TBD

# service interface

Service interface is an interface to communicate and to exchange information among services. There are several ways to exchange the information. For the service exchange, the followings shall be provided.

* Naming
* Service Discovery
* Service Management

# Maritime data exchange interface

This section covers the how to exchange Common Maritime Data Structure within a CSSA architecture.

* NMEA sentences/PGNs
* ENAV-61162
* Transportation of CMDS including encapsulation with S-10x

# User specific data interface

Each service may have its own data interface for proprietary purpose.

* TBD

# Operation and Management interface

Each interface maintains its own operation and management function. The interface includes the following

* TBD

# cyber Security

Each interface requires additional security features for the secure and confidential information exchange. Each interface may require the different levels of security. This section will cover the security issues for the interfaces.

* TBD

# other issues

The other related issues for the Machine-to-Machine Interfaces are following:

* TBD