

ETSI GS CDM 002 V1.1.1 (2021-03)



Common information sharing environment service and Data Model (CDM); System Requirements definition

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Reference

DGS/CDM-002

Keywords

data sharing, maritime, safety, service

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Contents

Intellectual Property Rights	4
Foreword.....	4
Modal verbs terminology.....	4
Introduction	4
1 Scope	9
2 References	9
2.1 Normative references	9
2.2 Informative references.....	10
3 Definition of terms, symbols and abbreviations.....	10
3.1 Terms.....	10
3.2 Symbols.....	12
3.3 Abbreviations	13
4 Overview	13
5 Functional requirements.....	13
5.1 Architecture.....	13
5.2 Infrastructure (Core Services)	14
5.2.1 General.....	14
5.2.2 Network and Communication Security.....	14
5.2.3 Message Routing (Network Service).....	14
5.2.4 Identification, Authentication and Authorization	15
5.2.5 Service Discovery (Service Manager).....	16
5.2.6 Auditing (Logging, Monitoring and Accounting).....	17
5.2.7 Administration User Interface.....	18
5.2.8 Collaboration Tools.....	19
5.3 Interface (Common Services).....	19
5.3.1 General.....	19
5.3.2 Information Exchange.....	19
5.3.3 Message Structure.....	20
5.3.4 Data Model	20
6 Performance requirements.....	21
Annex A (informative): Bibliography.....	22
History	23

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) European Common information sharing environment service and Data Model (CDM).

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](https://standards.iteh.ai/catalog/standards/sist/6396cc37-60ff-4785-a1f1-450606a0d-csi-gs-cdm-002-v1-1-1-2021-03) (Verbal forms for the expression of provisions).

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Introduction

On October 2009 the European Commission adopted a Communication "Towards the integration of maritime surveillance in the EU: A common information sharing environment for the EU maritime domain (CISE)", promoting to integrate maritime surveillance activities of all public maritime sectors across Europe (Figure 1).



Figure 1: Schematic diagram of the CISE vision

The aim of the integrated maritime surveillance is to generate a situational awareness of activities at sea, impacting on the denominated seven maritime sectors: Maritime Safety and Security, Border Control, Maritime Pollution and Marine Environment Protection, Fisheries Control, Customs, General Law Enforcement, Defence, as well as the economic interests of the EU, so as to facilitate sound decision making.

The added value of integrating maritime surveillance is to enhance the present sectoral maritime awareness pictures of the sectoral user communities, with additional relevant cross-sectoral and cross-border surveillance data on a responsibility to share basis. Such enhanced pictures increase Member States authorities' efficiency and improve cost effectiveness.

Thus, the decentralized information exchange system is directed to interlink all relevant User Communities, taking into account existing sectoral information exchange networks and planned systems, and allowing for the improvement and development of both the existing sectoral systems, and the overarching CISE network architecture (Figure 2).

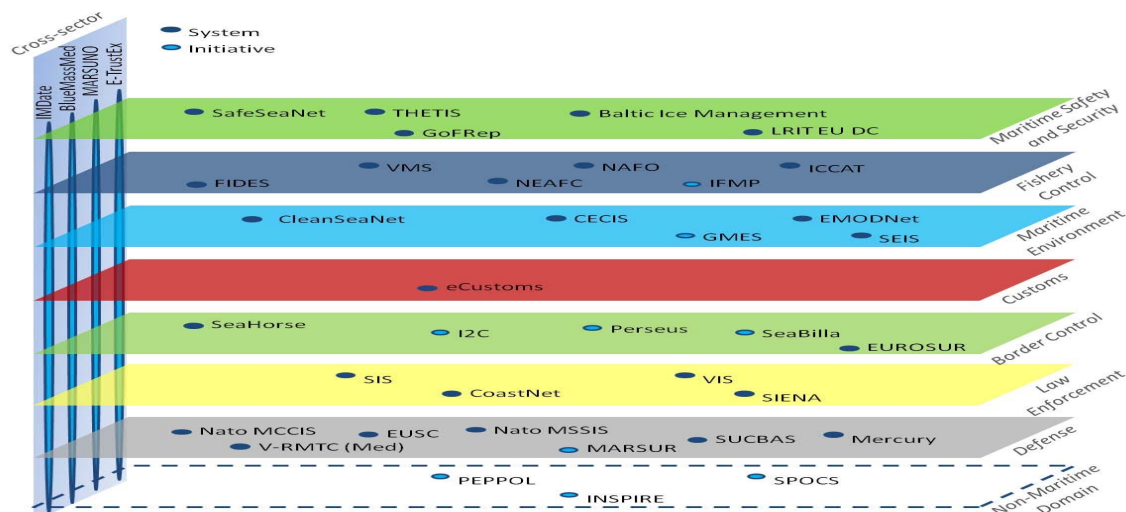


Figure 2: Existing sectoral information systems

To achieve the goals of the CISE vision, a series of EU sponsored projects, building up one on another, further investigated and developed the CISE vision, starting with the elaboration of the so-called CISE principles, which were defined as follows [i.2]:

- "CISE must allow the interlinking of any public authority in the European Union (EU) or European Economic Area (EEA) involved in maritime surveillance."
- "CISE must increase maritime awareness based on the "responsibility-to-share" principle."
- "CISE must support a decentralized approach at EU-level."
- "CISE must provide interoperability between civilian and military information systems."
- "CISE must be compatible and provide interoperability between information systems at the European, national, sectoral and regional levels."
- "CISE must support the reuse of existing tools, technologies and systems."
- "CISE must provide for seamless and secure exchange of any type of information relevant to maritime surveillance."
- "CISE must support the change of services by information provider (orchestration)."
- "CISE subscribers and stakeholders should be entitled to obtain information only if they also contribute in a way commensurate with their capabilities."

The CISE roadmap process that started with the definition of the CISE principles is shown in Figure 3.

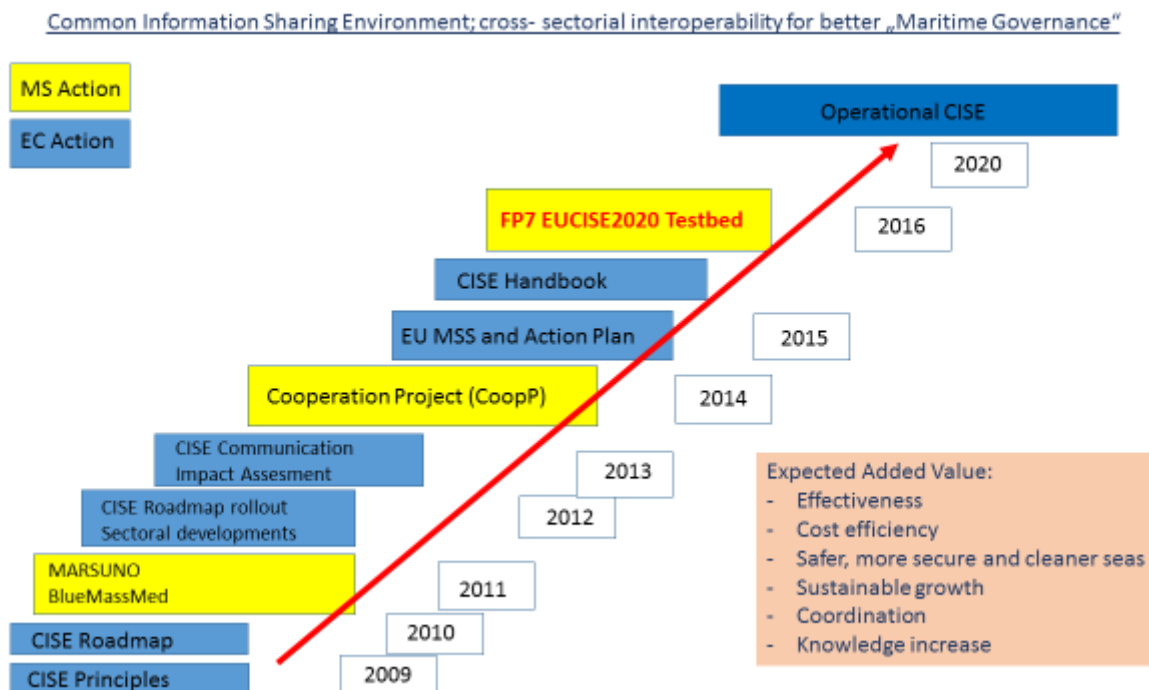


Figure 3: CISE Roadmap

During the roadmap process, a range of 82 use cases was defined representing the entire range of activities of the 7 maritime sectors and their related Coast Guard activity. Out of this range of 82 use cases, 9 use cases were identified as most characteristic and comprehensive covering the most relevant activities of all sectors. These use cases were to form the operational basis for the further and more detailed investigation of CISE cross- sectorial and cross border information exchange.

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The pre-operational validation project **European test bed for the maritime Common Information Sharing Environment in the 2020 perspective**, in short **"EU CISE2020"**, based on the 9 use cases selected, defined the requirements and developed the common architecture of the CISE information exchange network. Consequently, a total of 12 so-called "CISE Nodes" were built, integrated and successfully tested in 9 European countries, connecting a total of 20 sectoral legacy systems of various nature (Figure 4).

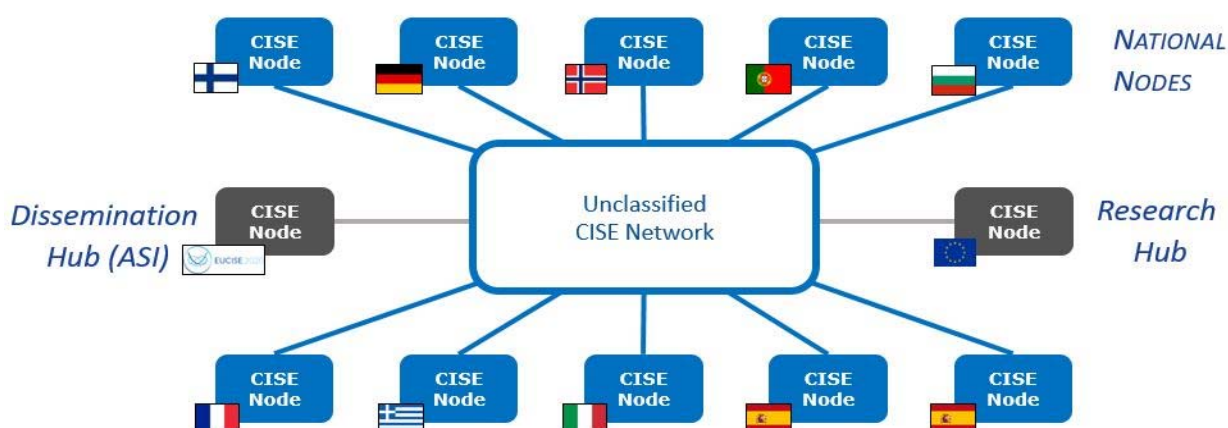


Figure 4: Diagram of the EUCISE 2020 testbed set- up

Hybrid and complementary cross-sectoral and cross-border information exchange requires a common "data language" within the common network architecture as well as a common set of IT- services to handle the data transfer. The **technical standardization** proposal for CISE implementation was therefore directed towards a standardization process within the framework of a professional European standardization environment in order to elaborate universal and sustainable technical specifications for the implementation and development of CISE, as well as offering a technical solution for other, similar information exchange regimes.

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1 Scope

The present document defines the System Requirements for the European Common information sharing environment service and Data Model (CDM). The requirements are based on the operational use cases described in ETSI GR CDM 001 [i.1].

The present document addresses requirements in the following broad areas:

- Architecture.
- Infrastructure (Core Services):
 - Network and Communication Security.
 - Message Routing.
 - Identification, Authentication and Authorization.
 - Service Discovery.
 - Auditing (Logging, Monitoring and Accounting).
 - Administration User Interface.
 - Collaboration Tools.
- Interface (Common Services):
 - Information Exchange.
 - Message Structure.
 - Data Model.
- Performance. <https://standards.iteh.ai/catalog/standards/sist/6396cc37-60ff-4785-a1f1-a30f6df6a6fd/etsi-gs-cdm-002-v1-1-1-2021-03>

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2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

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The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI GR CDM 001 (V1.1.1): "Common Information Sharing Environment Service and Data Model (CDM); Use Cases definition".

[i.2] CISE Architecture Visions Document V3.0 06/11/2013.

NOTE: Available at <https://webgate.ec.europa.eu/maritimeforum/en/node/4039>.

[i.3] Council Decision of 23 September 2013 on the security rules for protecting EU classified information (2013/488/EU). Official Journal of the European Union, L274, 3-52.

NOTE: Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D0488&from=EN>.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI GR CDM 001 [i.1] and the following apply:

activity: One of the following activities performed by a sector:

- for the maritime safety, security and prevention of pollution sector:
 - vessel traffic management;
 - vessel traffic safety;
 - monitoring of security of ships;
 - search and rescue;
 - support of response and enforcement operations (anti-piracy, SAR, salvage);
- for the fisheries control sector:
 - early warning of illegal fisheries or fish landings;
 - monitoring of compliance with regulations on fisheries;
 - support of response and enforcement operations;
- for the marine pollution preparedness and response sector:
 - monitoring of compliance with regulations;
 - early warning of environmental accidents and incidents;
 - support of pollution response operations;

- for the customs sector:
 - monitoring of compliance with customs regulation on import, export and movement of goods;
 - support of enforcement operations;
- for the border control sector:
 - monitoring of compliance with regulations on immigration and border control crossings;
 - support of enforcement operations;
- for the general law enforcement sector:
 - monitoring of compliance with applicable legislation in sea areas where police competence is required;
 - support to enforcement and response operations;
- for the defence sector:
 - monitoring in support of defence tasks such as national sovereignty at sea;
 - combatting terrorism and other hostile activities outside the EU;
 - other CSDP tasks as defined in Articles 42 and 43 of TEU.

consumer: participant requesting Service over CISE network, only consuming but not providing information

CoopP: project financed by the European Commission in 2013 defining the CISE use cases and the first version of the CISE data and service model

cross-border: (exchange of information) between EU or EFTA countries

cross-sector: (exchange of information) between two or more Sectors

EUCISE 2020: FP7 pre-operation validation project on CISE

NOTE 1: The project defined and developed the existing CISE Network and software (2014-2019).

NOTE 2: More information on the project can be found at <http://www.eucise2020.eu/>.

EU RESTRICTED: classified information covered by the definition of EU security classification levels [i.3]

NOTE 1: EU classified information is any information or material designated by the EU security classification, the unauthorized disclosure of which could cause varying degrees of prejudice to the interests of the European Union or of one or more of the Member States.

NOTE 2: The following EU security classification levels are defined:

- **EU TOP SECRET:** information and material the unauthorized disclosure of which could cause exceptionally grave prejudice to the essential interests of the European Union or of one or more of the Member States.
- **EU SECRET:** information and material the unauthorized disclosure of which could seriously harm the essential interests of the European Union or of one or more of the Member States.
- **EU CONFIDENTIAL:** information and material the unauthorized disclosure of which could harm the essential interests of the European Union or of one or more of the Member States.
- **EU RESTRICTED:** information and material the unauthorized disclosure of which could be disadvantageous to the interests of the European Union or of one or more of the Member States.

legacy system: software designed to perform specific tasks and that exposes certain functionalities through interfaces in the domain of the maritime surveillance

NOTE: In the present document, Legacy Systems are maintained by Public Authorities. Legacy Systems are the originator and final destinations of messages exchange in CISE.