



ASSESSMENT SUMMARY v1.0.0

ebXML RegRep (ebXML)¹

Organization for the Advancement of Structured Information Standards (OASIS)²

¹ ebXML RegRep reference: <https://docs.oasis-open.org/regrep/regrep-core/v4.0/os/regrep-core-overview-v4.0-os.html>

² OASIS organisation: <https://www.oasis-open.org/>

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1. INTRODUCTION

The present document is a summary of the assessment of the **ebXML** carried out by CAMSS using the CAMSS Assessment EIF scenario³. The purpose of this scenario is to assess the compliance of a standard or specification with the European Interoperability Framework (EIF)⁴.

2. ASSESSMENT SUMMARY

The ebXML RegRep can ease the provision of means for the identification, description and parametrisation (e.g. Metadata, semantics & ontologies, interoperability about access, authentication, authorisation, transport security configuration, etc.) of services.

Moreover, ebXML enhances interoperability by providing a standardised framework for exchanging XML-based business messages. It enables seamless integration and communication between different systems and organisations. The specification supports Once-Only Technical System (OOTS)⁵, by using ebXML for some tasks.

Finally, the specification was developed by the OASIS organisation. The OASIS organisation is a not-for-profit, international consortium that drives the development, convergence and adoption of open standards for the global information society. And as defined on the OASIS ebXML Registry Technical Committee (TC), only TC members are involved in the development of the ebXML specification. In reference to the specification, this organisation has published all the documentation on the web.

2.1. EIF Interoperability Principles

Interoperability principles are fundamental behavioural aspects that drive interoperability actions. They are relevant to the process of establishing interoperable European public services. They describe the context in which European public services are designed and implemented.

The specification fully supports the principles setting context for EU actions on interoperability:

- **Subsidiarity and proportionality**

ebXML is included in 1 national catalogues of recommended specifications. It belongs to Norway. The National Interoperability Framework (NIF) of Norway⁶ is aligned with at least 3 out of 4

³ CAMSS Assessment EIF Scenario: <https://ec.europa.eu/eusurvey/runner/CAMSSAssessmentEIFScenario6>

⁴ ISA2 programme website: https://ec.europa.eu/isa2/eif_en

⁵ OOTS reference: https://code.europa.eu/oosts/tdd/tdd_chapters/-/tree/86290aa801fb9a8e56486fc49019addcc1321a95/OOTS-EDM/xml/Request-Response%20Samples

⁶ National Catalogue of Norway: <https://www.difi.no/fagomrader-og-tjenester/digitalisering-og-samordning/standarder>

scoreboards of the EIF Monitoring according to the National Interoperability Framework Observatory (NIFO) factsheets⁷.

The specification supports the principles setting context for EU actions on interoperability:

- **Openness**

The ebXML, an standard using XML, aligns with the second star of Berners-Lee's Open Data model by providing structured data. Developed by the OASIS ebXML Registry Technical Committee⁸, it promotes interoperability in business processes, with contributions welcomed through transparent channels.

Operating under a royalty-free (RAND) license, ebXML, a joint initiative of UN/CEFACT and OASIS since 1999, has evolved through several versions, reaching 4.0. Its design prioritises ubiquity and extensibility, demonstrated by initiatives like UBL which leverage its core components for EDI independence.

- **Transparency**

ebXML enhances administrative visibility by enabling structured storage and exchange of electronic content, including an electronic data interchange model (ebRIM⁹ and ebRS¹⁰). Its detailed business process modelling guidelines facilitate automation, while registry and repository components manage metadata, improving service discovery. Secure messaging services ensure reliable data delivery.

By standardising electronic business information exchange, ebXML exposes public administration service interfaces, ensuring interoperability. Its messaging services prioritise secure delivery, and the registry/repository components streamline service discovery and access, collectively contributing to increased visibility and efficiency.

- **Reusability**

The ebXML specification was originally designed to be associated with business processes. In this sense, the ebXML working groups included a section dedicated to "business processes." Additionally, the "XML and Global Business Exchanges - an invitation"¹¹ document states that the specification aims to be a global initiative to develop an open technical framework, enabling XML to be utilised in a consistent and uniform manner for the exchange of all electronic business data.

⁷ NIFO Factsheets: <https://interoperable-europe.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/digital-public-administration-factsheets-2024>

⁸ OASIS ebXML Registry Technical Committee reference: https://www.oasis-open.org/committees/comments/index.php?wg_abbrev=regrep

⁹ ebRIM component reference: <http://docs.oasis-open.org/regrep/regrep-core/v4.0/os/regrep-core-rim-v4.0-os.html>

¹⁰ ebRS component reference: <http://docs.oasis-open.org/regrep/regrep-core/v4.0/os/regrep-core-rs-v4.0-os.html>

¹¹ "XML and Global Business Exchanges - an invitation" document: <https://xml.coverpages.org/ebXMLInvit.pdf>

However, it does not state that the specification cannot be used in other domains. Therefore, although it is designed to be implemented in a business context, it can be considered domain-agnostic.

- **Technological neutrality and data portability**

ebXML facilitates interoperable electronic business information exchange. While inherently extends XML, leading to a technology independency, it also achieves platform independence through XML's broad compatibility. Optional components, like Message Control Documents (MCD)¹², allow for incremental functionality implementation, though core elements remain fixed.

Moreover, the specification offers extensibility within ebRIM and ebRS, enabling plugins for tailored features, as demonstrated by the Open Geospatial Consortium's ebXML RegRep SWG¹³. This extensibility, detailed in ebXML RegRep 4.0, allows for adaptations like those made for geo-data.

The specification partially supports the principles related to generic user needs and expectations:

- **User-centricity**

The ebXML specification can help with the reuse of information by defining different mechanisms. In this sense, the specification provides a way to register business process sequences with related message exchanges. Additionally, in the context of OOTS (Once-Only Technical System) the ebXML specification provides the standardised structure necessary for relevant information to be identifiable, efficiently transported, and usable by receiving systems.

- **Inclusion and accessibility**

The purpose of ebXML is not related to e-accessibility. Therefore, this criterion is considered not applicable to the specification.

- **Privacy**

ebXML enhances data protection through encryption, like XML Encryption, enabling secure information sharing between public administrations and safeguarding against unauthorised alterations and attacks. Authorisation and authentication mechanisms further restrict access to verified users, ensuring data confidentiality and trustworthiness.

¹² ebXML MCD implementation: https://docs.oracle.com/cd/E13215_01/wlbc/docs81/admin/xml_protocols.html#1032357

¹³ ebXML RegRep SWG reference: <https://www.ogc.org/projects/groups/ebxmlregrepSWG>

Integrated within systems like e-CODEX¹⁴, ebXML, particularly with ebMS 3.0, structures message headers and secures exchanges via the gateway. This facilitates reliable and secure global communication, reinforcing its role in secure data handling.

- **Security**

ebXML prioritises robust message-level security, addressing diverse needs like digital signatures and non-repudiation, surpassing standard SSL/TLS. This is achieved through XML Security operations, including XML Signature¹⁵ and Encryption¹⁶, ensuring both secure data exchange and content integrity. Sender authentication, vital for long transactions, further verifies user identity, establishing trust.

To guarantee data integrity, ebXML employs digital signatures, often complemented by SAML and XACML for comprehensive authentication and authorisation. Moreover, mechanisms like data encryption and user authentication are integral to ensuring data accuracy and preventing unauthorised access or modifications. By combining these security measures, ebXML creates a reliable and trustworthy environment for data exchange.

- **Multilingualism**

The purpose of ebXML is not related to the delivery of multilingual services. Therefore this criterion is not applicable to this specification.

The specification partially supports the foundation principles for cooperation among public administrations:

- **Administrative Simplification**

ebXML establishes a standardised format for message exchange, fostering business collaborations through the seamless sharing of XML documents. This uniformity simplifies communication and promotes interoperability between diverse systems.

Furthermore, ebXML plays a crucial role in enabling digital service delivery channels. By providing a secure and reliable framework for exchanging XML-based business messages, it ensures seamless integration and interoperability, which are essential for efficient digital service delivery.

- **Preservation of information**

The ebXML specification allows for the registration of information, making it accessible to other organisations or users. Additionally, the specification supports the use of the Collaboration

¹⁴ Eur-lex ebXML reference: <https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX%3A32022D2519&qid=1743495780482>

¹⁵ XML signature: <https://www.w3.org/TR/xmlsig-core/>

¹⁶ XML Encryption: <https://www.w3.org/Encryption/2001/>

Protocol Profile (CPP), which provides information that can also be stored and accessed by other users.

- **Assessment of effectiveness and efficiency**

The effectiveness and efficiency of the ebXML specification has been assessed by the Institute of Electrical and Electronics Engineers, dedicated to standardisation and development in technical areas. In the "ebXML: status, research issues, and obstacles"¹⁷ study, it is seen that the status of ebXML is addressed, and open research issues to be solved in order to meet some of the obstacles on the way to a commercial application of ebXML are identified. In addition, in the "ebXML and Web services"¹⁸ study, it is seen an overview of the ebXML and the Web services architecture (WSA) specifications. In this sense, it is also offered a comparison between both specifications.

2.2. EIF Interoperability Layers

The interoperability model which is applicable to all digital public services includes:

- Four layers of interoperability: legal, organisational, semantic and technical;
- A cross-cutting component of the four layers, 'integrated public service governance';
- A background layer, 'interoperability governance'.

The Specification partially supports the implementation of digital public services complying with the EIF interoperability model:

- **Interoperability governance**

ebXMLRegRep is linked to EIRA ABBs in the EIRA Library of Interoperability Specifications (ELIS)¹⁹, defining interoperability aspects of the "Registration" ABB in the EIRA Technical View. Moreover, although there is no platform to test ebXML specification implementations, some papers addressing the testing can be found. Additionally, the specification is important in both, national and European level, and can be found in some projects, such as the UBL 2.1²⁰.

- **Legal Interoperability**

The ebXML specification is developed by a non-European organisation. Therefore, the specification cannot be considered a European standard.

¹⁷ "ebXML: status, research issues, and obstacles" study: <https://ieeexplore.ieee.org/abstract/document/995093>

¹⁸ "ebXML and Web services" study: <https://ieeexplore.ieee.org/abstract/document/1200304>

¹⁹ EIRA Library of Interoperability Specifications (ELIS): <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elis/release/v610>

²⁰ ebXML UBL 2.1 eur-lex: <https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX%3A32014D0771&qid=1743495780482>

- **Organisational interoperability**

ebXML's components enable versatile electronic content handling and business process modeling, while its standardised XML framework and Collaboration Protocol Agreements (CPAs) foster organisational interoperability, ensuring seamless communication and data exchange.

- **Semantic Interoperability**

The ebXML specification is assessed and discussed in various forums and across the Internet. For example, the ebXML Forum News²¹ discusses the specification. Additionally, there are many papers that explore ebXML and its implementation, such as the "EbXML simplified: a guide to the new standard for global e-commerce"²² document.

²¹ ebXML Forum News: <https://ebxmlforum.blogspot.com/>

²² "EbXML simplified: a guide to the new standard for global e-commerce" document: https://books.google.es/books?hl=es&lr=&id=y5mwRBUXgAAC&oi=fnd&pg=PR3&dq=ebxml+&ots=yYosABWG9D&sig=wjypDYsboxfGo7abUyoaQFyIBSg&redir_esc=y#v=onepage&q=ebxml&f=false

3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for **ebXML RegRep**. The CAMSS “Strength” indicator measures the reliability of the assessment by calculating the number of answered (applicable) criteria. On the other hand, the number of favourable answers and the number of unfavourable ones is used to calculate the “Automated Score” per category and an “Overall Score”.

Category	Automated Score	Assessment Strength	Compliance Level
EIF Principle setting the context for EU actions on interoperability	100/100 (100%)	100%	Seamless
Core interoperability principles	1320/1700 (78%)	100%	Sustainable
Principles related to generic user needs and expectations	1180/1200 (98%)	100%	Seamless
Foundation principles for cooperation among public administrations	480/500 (96%)	100%	Seamless
Interoperability layers*	900/1000 (90%)	100%	Seamless
Overall Score	3780/4300 (88%) ²³	100%	

**The technical interoperability layer is covered by the criteria corresponding to the core interoperability principle "Openness".*

With an 100% of assessment strength, this assessment can be considered representative of the specification compliance with the EIF principles and recommendations.

The Overall Automated Score of 88% (3780/4300) demonstrates that the specification supports the European Interoperability Framework in the domains where it applies.

²³ See the “results interpretation” section of the CAMSS Assessment EIF Scenario Quick User Guide:

<https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/camss-assessment-eif-scenario/results-visualisation-and-interpretation>