CAMSS Assessment EIF Scenario v5.1.0

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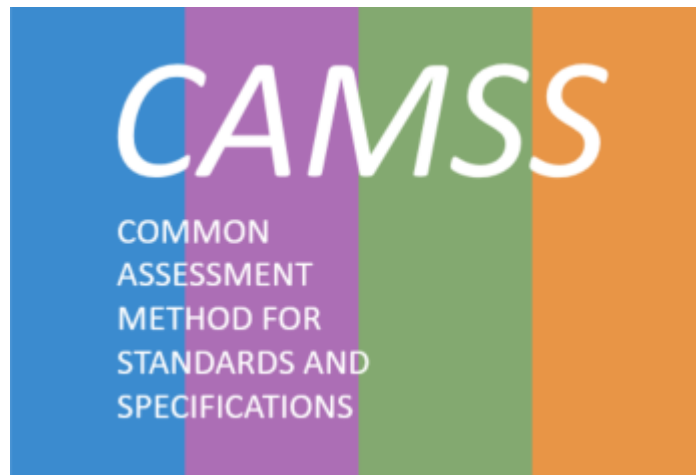
# CAMSS Assessment EIF Scenario v5.1.0

**ASSESSMENT**
**EIF Scenario**

**Release Date:** 18/07/2022

**Scenario Version:** 5.1.0

## INTRODUCTION

## EIF Scenario

The European Interoperability Framework (EIF) provides guidance to public administrations on how to improve governance of their interoperability activities, establish cross-organisational relationships, streamline processes supporting end-to-end digital services, and ensure that existing and new legislation do not compromise interoperability efforts.

This CAMSS Scenario allows to assess the compliance of **interoperability specifications** with the EIF. The objective of the obtained assessment is to determine the suitability of the assessed interoperability specification for the delivery of interoperable European public services.

## Background

CAMSS is the European guide for assessing and selecting standards and specifications for an eGovernment project, a reference when building an architecture, and an enabler for justifying the choice of standards and specifications in terms of interoperability needs and requirements. It is fully aligned with the European Standardisation Regulation 1025/2012.

The main objective of CAMSS is achieving interoperability and avoiding vendor lock-in by establishing a neutral and unbiased method for the assessment of technical specifications and standards in the field of ICT. This method will be compliant with Regulation 1025/2012 on European Standardisation.

While ICT solutions have specific characteristics at the political, legal, and organisational levels; semantic and technical interoperability are based mostly on technical specifications or standards. Within the context of the elaboration of their National Interoperability Frameworks, Member States organise the assessment of technical specifications or standards, in order to establish their national recommendations. Deciding on the recommended technical specifications or standards often calls for a resource-intensive and time-consuming assessment. In order to tackle this, the Digital Europe Programme (DEP) defines an action focused on the development of a common assessment method for standards and specifications (CAMSS).

**The purpose of CAMSS is:**

- to ensure that assessments of technical ICT specifications or standards and interoperability profiles are performed according to high and consistent standards;

- to ensure that assessments will contribute significantly to the confidence in the interoperability of systems implementing these specifications and profiles;
- to enable the reuse, in whole or in part, of such assessments;
- to continuously improve the efficiency and effectiveness of the assessment process for ICT technical specifications, standards, and interoperability profiles.

**The expected benefits of the CAMSS are:**

- Ensuring greater transparency throughout the selection of standards in the context of ICT strategies, architectures, and interoperability frameworks. This will be achieved through the establishment of a commonly agreed assessment method, assessment process, and a list of assessment attributes.

- Reducing resource and time requirements and avoiding duplication of efforts. (Partial) sharing of finalised assessments of standards and specifications.

- Allowing easier and faster assessments, and reusing the ones already performed through the creation and maintenance of a library of standards.

Your compliance level of the specification assessed depends on the scores you achieved in each section of the survey. Please see below the survey score conversion table below for guidance.

| Section | Compliance Level | | | | |
| | Ad-hoc | Opportunistic | Essential | Sustainable | Seamless |
|---|---|---|---|---|---|
| **Principles setting the context for EU Actions on Interoperability** | 20 | 40 | 60 | 80 | 100 |
| **EIF Core Interoperability Principles** | 0 to 440 | 441 to 880 | 881 to 1320 | 1321 to 1760 | 1761 to 2200 |
| **EIF Principles Related to generic user needs and expectations** | 0 to 100 | 101 to 200 | 201 to 300 | 301 to 400 | 401 to 500 |
| **EIF Foundation principles for cooperation among public** | 0 to 100 | 101 to 200 | 201 to 300 | 301 to 400 | 401 to 500 |

**administrations**

| | | | | | |
|---|---|---|---|---|---|
| **EIF Interoperability Layers** | 0 to 220 | 221 to 440 | 441 to 660 | 661 to 880 | 881 to 1100 |

The following table shows the 'compliance levels' that a specification can reach depending on the assessment score.

| Compliance Level | Description |
|---|---|
| **Ad-hoc** | Poor level of conformance with the EIF - The specification does not cover the requirements and recommendations set out by the EIF in this area. |
| **Opportunistic** | Fair level of conformance with the EIF - The specification barely covers the requirements and recommendations set out by the European Interoperability Framework in this area. |
| **Essential** | Essential level of conformance with the EIF - The specification covers the basic aspects set out in the requirements and recommendations from the European Interoperability Framework. |
| **Sustainable** | Good level of conformance with the EIF scenario - The specification covers all the requirements and recommendations set out by the European Interoperability Framework in this area. |
| **Seamless** | Leading practice of conformance level with the EIF - The specification fully covers the requirements and recommendations set out by the European Interoperability Framework in this area. |

**Contact:** For any general or technical questions, please send an email to DIGIT-CAMSS@ec.europa.eu. Follow all activities related to the CAMSS on our CAMSS community page.

# USER CONSENT

*Disclaimer:*

*By no means will the Interoperability Specification assessment imply any endorsement of the EC to the assessed specification. Likewise, the use of CAMSS Assessment EIF Scenario implies that the user accepts that the EC is not liable on the assessment nor on any direct or indirect consequence/decision of such assesment.*

The CAMSS Assessment EIF Scenario is based on EU Survey, by accepting the CAMSS Privacy Statement the user also accepts EU Survey Privacy Statement and the Terms of use.

* Please, fill in the mandatory* information to start the assessment

- ☑ *I have read and agreed to the following CAMSS Privacy Statement: here
- ☐ I agree to be contacted for evaluation purposes, namely to share my feedback on specific DEP solutions and actions and on the DEP programme and the European Interoperability Framework in general.

## IDENTIFICATION

### Information on the information provider

Your Last name

CAMSS Team

Your First Name

Your Position / Role

**\*** Your Organisation

European Commission DG DIGIT

Your Contact phone number

**\*** Would you like to be contacted for evaluation purposes in the context of your assessment? To see how your data is handled, please check again the Privacy statement here

In case you would like to be contacted, please select "yes" and provide your email.

⦿ Yes
◯ No

Contact Email

DIGIT-CAMSS@ec.europa.eu

**\*** Where did you learn about CAMSS?

◯ DEP Programme (DEP website, DEP social media)
◯ Joinup (e.g., CAMSS Collection, Joinup social media)
⦿ European Commission
◯ Public Administrations at national, regional or local level
◯ Standards Developing Organizations (SDOs)
◯ Other

If you answered "Other" in the previous question, please specify how:

## Information on the specification

**\*** Specificaton type

**Specification**: Set of agreed, descriptive, and normative statements about how a specification should be designed or made.
**Standard**: Specification that is largely adopted and possibly endorsed.
**Application Profile**: An application profile "customises one or more existing specifications potentially for a given use case or a policy domain adding an end to end narrative describing and ensuring the interoperability of its underlying specification(s)".
**Family**: A family is a collection of interrelated and/or complementary specifications, standards, or application profiles and the explanation of how they are combined, used, or both.

- ◉ Specification
- ◯ Standard
- ◯ Application Profile
- ◯ Family of Specification

**\*** Title of the specification

Lightweight Directory Access Protoco

**\*** Version of the specification

3.0

**\*** Description of the specification

The Lightweight Directory Access Protocol (LDAP) is an open, vendor-neutral, industry standard application protocol for accessing and maintaining distributed directory information services over an Internet Protocol (IP) network.

**\*** URL from where the specification is distributed

https://datatracker.ietf.org/doc/html/rfc4511

**\*** Name and website of the standard developing/setting organisation (SDO/SSO) of the specification

- ◯ W3C (https://www.w3.org)
- ◯ OASIS (https://www.oasis-open.org/)
- ◯ IEEE (https://standards.ieee.org/)
- ◯ ETSI (https://www.etsi.org/)
- ◯ GS1 (https://www.gs1.fr/)
- ◯ openEHR (https://www.openehr.org/)
- ◉ IETF (https://www.ietf.org/)

○ Other (SDO/SSO)

Contact information/contact person of the SDO
a) for the organisation
b) for the specification submitted

[ ]

## Information on the assessment of the specification

Reason for the submission, the need and intended use for the specification.

[ ]

If any other evaluation of this specification is known, e.g. by Member States or European Commission projects, provide a link to this evaluation.

[ ]

## Considerations

Is the functional area of application for the formal specification addressing interoperability and eGovernment?

◉ YES
○ NO

Additional Information

> LDAP can provide better accessibility and continuity, especially for public services that must be provided by public administrations.

## EIF PRINCIPLES SETTING THE CONTEXT FOR EU ACTIONS ON INTEROPERABILITY

This category is related to the first underlying principle (UP) of the EIF Subsidiarity and Proportionality (UP1). The basis of this principle is to ensure that the EU Actions are taken or stated to improve national actions or decisions. Specifically, it aims to know if National Interoperability Frameworks are aligned with the EIF.

*Please note that some of the questions have a prefilled answer depending on the SDO. To ensure it, please see that these questions include a help message that remarks it.*

## Subsidiarity and Proportionality

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\* **A1 - To what extent has the specification been included in a national catalogue from a Member State whose National Interoperability Framework has a high performance on interoperability according to National Interoperability Framework Observatory factsheets?**

EIF Recommendation 1: Ensure that national interoperability frameworks and interoperability strategies are aligned with the EIF and, if needed, tailor and extend them to address the national context and needs.

This criterion assesses if the specifications have been included within the National Catalogues of Specifications of the Member States that are highly aligned with the higher level of performance in terms of interoperability.

The Digital Public Administration Factsheets use three categories to evaluate the level of National Interoperability frameworks in accordance with the EIF. The three categories are 1. CONCEPTUAL MODEL FOR INTEGRATED PUBLIC SERVICES PROVISION; 2 INTEROPERABILITY LAYERS, and 3. INTEROPERABILITY PRINCIPLES. National Interoperability Frameworks reports can be found here: https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/digital-public-administration-factsheets-2021

- ◉ Not Answered
- ◉ Not Applicable
- ◉ The specification has not been included within the catalogue of any Member State.
- ◉ The specification has been included within the catalogue of a Member State with a lower performance than stated in the Digital Public Administration Factsheets from the NIFO.
- ◉ The specification has been included within the catalogue of a Member State with a middel-lower performance than stated in the Digital Public Administration Factsheets from the NIFO.
- ◉ The specification has been included within the catalogue of a Member State with a middle-upper performance than stated in the Digital Public Administration Factsheets from the NIFO.
- ◉ The specification has been included within the catalogue of a Member State with a higher performance than stated in the Digital Public Administration Factsheets from the NIFO.

\* Justification

> LDAP is included in 9 national catalogues of recommended specifications. They belong to Croatia, Cyprus, France, Germany, Greece, Malta, Netherlands, Spain, Sweden. The National Interoperability Framework (NIF) of Spain is fully aligned with at least 4 out of 5 sections of the European Interoperability Framework (EIF) according to the National Interoperability Framework Observatory (NIFO) factsheets. Nonetheless, countries like Sweden or Malta do not get a high perfomance, being alligned with 3 out of 5 and 2 out of 5 respectively.
>
> National catalogue Malta:
> https://www.forumstandaardisatie.nl/open-standaarden
>
> National catalogue Spain:
> https://administracionelectronica.gob.es/pae_Home/pae_Estrategias/pae_Interoperabilidad_Inicio /pae_Normas_tecnicas_de_interoperabilidad.html#CATALOGOESTANDARES

National catalogue Sweden:

https://www.avropa.se/globalassets/dokument/open-it-standards.pdf?_t_id=1B2M2Y8AsgTpgAmY7PhCfg%3d%3d&_t_q=standards&_t_tags=language%3asv%2csiteid%3a95d515a5-23ca-47bf-87a9-07b10d8ac360&_t_ip=178.139.72.144&_t_hit.id=Avropa_Core_Models_Media_GenericMedia/_ff07d720-f793-44b0-994d-27e79b28f6bd&_t_hit.pos=7

NIFO factsheets:

https://joinup.ec.europa.eu/collection/national-interoperability-framework-observatory-nifo/nifo-factsheets

# EIF CORE INTEROPERABILITY PRINCIPLES

In this category, elements related to the core interoperability principles (UP) are encompassed, which are: openness (UP 2), transparency (UP3), reusability (UP4), technological neutrality and data portability (UP5).

## Openness

**\* A2 - Does the specification facilitate the publication of open data?**

**EIF Recommendation 2:** Publish the data you own as open data unless certain restrictions apply.

Relates to the ability of the specification to publish data as open data or not.

- ○ Not Answered
- ● Not Applicable
- ○ NO
- ○ YES

**\* Justification**

> LDAP is not related to the publication of open data, therefore this criterion is not applicable to the specification.
>
> LDAP v3.0
> https://datatracker.ietf.org/doc/html/rfc4511

**\* A3 - To what extent do stakeholders have the opportunity to contribute to the development of the specification?**

**EIF Recommendation 3:** Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

Relates to in which measure the different stakeholders that a specification can benefit have the opportunity to participate in the working groups focused on the development of certain specifications.

- ○ Not Answered
- ○ Not Applicable
- ○ There is no information on the working group of the specification.
- ○ The working group is open to participation by any stakeholder but requires registration, fees, and membership approval.

○ The working group is open to participation by any stakeholder but requires fees and membership approval.

○ The working group is open to participation following a registration process.

● The working group is open to all without specific fees, registration, or other conditions.

Justification:

IETF has a formal review and approval so that all the relevant stakeholders can formally appeal or raise objections to the development and approval of specifications.

Each distinct version of an Internet standards-related specification is published as part of the "Request for Comments" (RFC) document series. This archival series is the official publication channel for Internet standards documents and other publications.

During the development of a specification, draft versions of the document are made available for informal review and comment by placing them in the IETF's "Internet-Drafts" directory, which is replicated on a number of Internet hosts. This makes an evolving working document readily available to a wide audience, facilitating the process of review and revision.

Standard process IETF:
https://www.ietf.org/standards/process/

Internet Best Current Practices IETF:
https://tools.ietf.org/html/rfc2026

Additional Information

In case you need to add further justification.

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**\* A4 - To what extent is a public review part of the release lifecycle?**

**EIF Recommendation 3:** Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

A public review consists of the public availability of the specification's draft for stakeholders to provide inputs for the improvement and fix of possible bugs.

○ Not Answered

○ Not Applicable

○ Specification releases do not foresee public reviews.

○ Public review is applied to certain releases depending on the involved changes.

○ All major releases foresee a public review.

○ All major and minor releases foresee a public review but, during which, collected feedback is not publicly visible.

● All major and minor releases foresee a public review during which collected feedback is publicly visible.

Justification:

The IETF is a consensus-based group, and authority to act on behalf of the community requires a high degree of consensus and the continued consent of the community. The process of creating and Internet Standard is straightforward: a specification undergoes a period of development and several iterations of review by the Internet community and revision based upon experience, is adopted as a Standard by the appropriate body... and is published. In practice, the process is more complicated,

due to (1) the difficulty of creating specifications of high technical quality; (2) the need to consider the interests of all the affected parties; (3) the importance of establishing widespread community consensus; and (4) the difficulty of evaluating the utility of a particular specification for the Internet community. The goals of the Internet Standards Process are:
- Technical excellence;
- prior implementation and testing;
- clear, concise, and easily understood documentation;
- openness and fairness; and
- timeliness.

The goal of technical competence, the requirement for prior implementation and testing, and the need to allow all interested parties to comment all require significant time and effort. The Internet Standards Process is intended to balance these conflicting goals. The process is believed to be as short and simple as possible without sacrificing technical excellence, thorough testing before adoption of a standard, or openness and fairness.

Standard process IETF:
https://www.ietf.org/standards/process/

Additional Information

In case you need to add further justification.

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**\* A5 - Is the specification available with any restrictions related to Fair, Reasonable, and Non-Discriminatory ((F)RAND)?**

**EIF Recommendation 3:** Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

The FRAND basis relates to fair, reasonable, and non-discriminatory IPR disclosures.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

Like all the IETF standards, this specification is a free and open technical specification, built on IETF standards and licenses from the Open Web Foundation. Therefore it is licensed on a royalty-free basis. No IPR disclosures have been submitted directly on this RFC.

Intellectual Property Rights in IETF:
https://datatracker.ietf.org/doc/html/rfc3668

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**\* A6 - Is the specification licensed on a royalty-free basis?**

**EIF Recommendation 3:** Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

Additionally to the EIF's recommendation that refers to open-source software it applies to a specification in itself at any interoperability level (legal, organisational, semantic, or technical)

○ Not Answered
○ Not Applicable
○ NO
◉ YES

Justification:
Like all the IETF standards, this specification is a free and open technical specification, built on IETF standards and licenses from the Open Web Foundation. Therefore it is licensed on a royalty-free basis. No IPR disclosures have been submitted directly on this RFC.

Intellectual Property Rights in IETF:
https://datatracker.ietf.org/doc/html/rfc8179

Additional Information
In case you need to add further justification.

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**\* A7 - To what extent is the specification sufficiently mature for its use in the development of digital solutions/services?**

**EIF Recommendation 4:** Give preference to open specifications, taking due account of the coverage of functional needs, maturity and market support, and innovation.

Maturity related to the stability of the specification, meaning that it has been evolved enough and mechanisms for its development have been put in place (Change Management processes, monitoring, etc.)

○ Not Answered
○ Not Applicable
○ The specification has no published releases and no publicly accessible information on its development state.
○ The specification is under development without published releases.
○ The specification is under development with published preview releases.
○ The specification has published major releases but without public documentation on its supporting processes (e.g. change management and release management).
◉ The specification, in addition to having major releases available, has published documentation on its supporting processes (e.g. change management and release management).

**\* Justification**

LDAP was created in 1993 and quickly became one of the foundational authentication protocols used by IT network. The fact that in 1998, OpenLDAP 1.0 was implemented as an open source version of LDAP made it very popular. Therefore, it is demonstrated that LDAP has enough maturity for its use in the development of digital solutions and services.

LDAP IETF reference:
https://tools.ietf.org/html/rfc4511

OpenLDAP:
https://www.openldap.org/

**\* A8 - To what extent has the specification sufficient market acceptance for its use in the development of digital solutions/services?**

EIF Recommendation 4: Give preference to open specifications, taking due account of the coverage of functional needs, maturity and market support, and innovation.

Relates to how the specification is supported by the market, taking as a reference whether or not the specifications are widely used or implemented. There is an exception, and it is when the specification is used to implement innovative solutions, then, the secification should not be considered as failing to meet the requirements of the criterion.

- ◎ Not Answered
- ◎ Not Applicable
- ◎ There is no information about the specification's market uptake.
- ◎ The specification has known implementations but not enough to indicate market acceptance.
- ◎ The specification has widespread use indicating market acceptance.
- ◎ The specification has widespread use and relevant independent reports proving its market acceptance.
- ◉ The specification does not have market acceptance because it is directly used to create innovative solutions.

**\* Justification**

LDAP is still excellent with authenticating Linux-based applications including many open source solutions, for example: OpenVPN, Jenkins, Kubernetes. It is often used to complement Active Directory (AD) as a directory services protocol. Therefore, it is demonstrated that LDAP has enough market acceptance for its use in the development of digital solutions and services.

LDAP used with OpenVPN:
https://openvpn.net/vpn-server-resources/openvpn-access-server-on-active-directory-via-ldap/

**\* A9 - To what extent has the specification support from at least one community?**

EIF Recommendation 3: Ensure a level playing field for open-source software and demonstrate active and fair consideration of using open source software, taking into account the total cost of ownership of the solution.

Related to whether or not communities exist around the specification at any level legal, organisational, semantic, or technical contributions to its enhancement and development.

- ◎ Not Answered
- ◎ Not Applicable
- ◎ There is no community linked to the specification.
- ◎ Specification support is available but as part of a closed community requiring registration and possibly fees.
- ◎ There is no specific community to support the specification but there are public channels for the exchange of help and knowledge among its users.
- ◎ There is a community providing public support linked to the specification but in a best-effort manner.
- ◉ There is a community tasked to provide public support linked to the specification and manage its maintenance.

**\* Justification**

LDAP is maintained and developed by IETF which is an international community developing open standards. In addition, the OpenLDAP Foundation is another community centered around the distribution and maintenance of the open source version of the specification.

Developer community IETF:
https://www.ietf.org/about/

OpenLDAP website:
https://www.openldap.org/

# Transparency

**\* A10 - To what extent does the specification enable the visibility of administrative procedures, rules data, and services?**

**EIF Recommendation 5:** Ensure internal visibility and provide external interfaces for European public services.

- ○ Not Answered
- ◉ Not Applicable
- ○ The specification hinders visibility.
- ○ The specification neither promotes nor hinders visibility.
- ○ The specification can contribute and promote the visibility of administrations, but it is not its main purpose.
- ○ The specification can enable the visibility of administrations if combined with other specifications.
- ○ The specification actively promotes and supports visibility.

**\* Justification**

The purpose of LDAP is not related to the visibility of administrative procedures, rules data or services. Therefore, this criterion is not applicable to this specification.

LDAP IETF reference:
https://tools.ietf.org/html/rfc4511

**\* A11 - To what extent does the specification scope comprehensibly administrative procedures, rules data, and services?**

**EIF Recommendation 5:** Ensure internal visibility and provide external interfaces for European public services.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification hinders comprehensibility.
- ○ The specification neither promotes nor hinders comprehensibility.
- ○ The specification can contribute and promote the comprehensibility of administrations, but it is not its main purpose.
- ○ The specification can scope the comprehensibility of administrations if combined with other specifications.
- ◉ The specification actively promotes and supports comprehensibility.

**\* Justification**

As a protocol for mantaining and accessing Directory Services, LDAP is a useful tool to display of user information in a readable manner. comprehensibility of data therefore is supported by the fact that it permits to access user information in the network in a structured, human-readable manner.

LDAP Directory Information Models:
https://datatracker.ietf.org/doc/html/rfc4512

LDAP IETF reference:
https://tools.ietf.org/html/rfc4511

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**\* A12 - To what extent does the specification enable the exposure of interfaces to access the public administration's services?**

EIF Recommendation 5: Ensure internal visibility and provide external interfaces for European public services.

Relates to ensuring availability of interfaces with internal information systems. As the EIF defines: *Public administrations operate a large number of what are often heterogeneous and disparate information systems in support of their internal processes. Interoperability depends on ensuring the availability of interfaces to these systems and the data they handle. In turn, interoperability facilitates the reuse of systems and data and enables these to be integrated into larger systems.*

- ○ Not Answered
- ● Not Applicable
- ○ The specification prevents the exposure of such interfaces.
- ○ The specification neither promotes nor hinders the exposure of such interfaces.
- ○ The specification can contribute to the exposure of interfaces, but it is not its main purpose.
- ○ The specification can enable the exposure of interfaces if combined with other specifications.
- ○ The specification enables exposure of such interfaces.

**\* Justification**

The purpose of LDAP is not related to the exposure of interfaces to access the public administration's services. Therefore, this criterion is not applicable to this specification.

LDAP IETF reference:
https://tools.ietf.org/html/rfc4511

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**\* A13 - To what extent does the specification ensure the protection of personal data managed by Public Administrations?**

EIF Recommendation 5: Ensure internal visibility and provide external interfaces for European public services.

Securing the right to the protection of personal data, by respecting the applicable legal framework for the large volumes of personal data of citizens, held and managed by Public administrations.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification hinders the protection of personal data.
- ○ The specification does not address the protection of personal data but neither prevents it.
- ○ The specification includes certain data protection considerations but without being exhaustive.
- ○ The specification explicitly addresses data protection but without referring to relevant regulations.
- ● The specification explicitly addresses data protection and its alignment to relevant regulations.

**\* Justification**

> To support unauthorised access and modification of information, LDAP foresees a set of additional layers of security that require authentication mechanisms such as SASL and TLS. It is vital that these security functions be interoperable among all LDAP clients and servers on the Internet; therefore there has to be minimum subset of security functions that is common to all implementations that claim LDAP conformance.
>
> LDAP Authentication methods and security mechanisms:
> https://www.rfc-editor.org/rfc/rfc4513.txt

## Reusability

**\* A14 - To what extent is the specification usable beyond the business-specific domain, allowing its usage across business domains?**

**EIF Recommendation 6:** Reuse and share solutions, and cooperate in the development of joint solutions when implementing European public services.

Relates to the use of the specification beyond a specific business domain. E.g. a specification developed under the eHealth domain that can be used in other domains or not.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification is tied to a specific domain and is restricted from being used in other domains.
- ○ The specification is associated with a specific domain but its use in other domains is difficult.
- ○ The specification is associated with a specific domain but could be partially used in other domains.
- ○ The specification is associated with a specific domain but could be used 'as-is' to other domains.
- ● The specification is domain-agnostic, designed to be used in any domain.

**\* Justification**

> Being a standard protocol for mantaining and accessing directory services, LDAP can be used across business domains as long as they require the storage and management of user information.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

**\* A15 - To what extent is the specification usable beyond the business-specific domain, allowing its implementation across business domains?**

**EIF Recommendation 6:** Reuse and share solutions, and cooperate in the development of joint solutions when implementing European public services.

Relates to the use of the specification beyond a specific business domain. E.g. a specification developed under the eHealth domain that can be used in other domains or not.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification is tied to a specific domain and is restricted from being implemented in other domains.

- ○ The specification is associated with a specific domain but its implementation in other domains is difficult.
- ○ The specification is associated with a specific domain but could be partially implemented in other domains.
- ○ The specification is associated with a specific domain but could be implemented 'as-is' to other domains.
- ● The specification is domain-agnostic, designed to be implemented in any domain.

**\* Justification**

> Being a standard protocol for mantaining and accessing directory services, LDAP can be used across business domains as long as they require the storage and management of user information.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

## Technological Neutrality and Data Portability

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**\* A16 - Is the specification technology agnostic?**

**EIF Recommendation 8:** Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

Technology-neutrality relates to not being dependent on any other ("sister") specifications, and platform-neutrality, not being dependent on any specific environment, web platform, operating system.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

> LDAP can be used independently of any other technical specifications. As a network protocol, it can be implemented in any type of domain. For instance, it is widely used to complement Active Directory (AD) as a directory services protocol.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511
>
> LDAP with Active Directory:
> https://www.solarwindsmsp.com/blog/difference-between-ldap-ad

**\* A17 - Is the specification platform agnostic?**

**EIF Recommendation 8:** Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

Technology-neutrality relates to not being dependent on any other ("sister") specifications, and platform-neutrality, not being dependent on any specific environment, web platform, operating system.

- ○ Not Answered
- ○ Not Applicable

○ NO
● YES

<span style="color:red">*</span> Justification

> By nature, LDAP is compatible with different operating systems and devices. However, different LDAP offerings may limit this flexibility; AD, for example, is Windows-centric and often requires add-ons to work seamlessly with additional operating systems.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511
>
> LDAP with Active Directory:
> https://www.solarwindsmsp.com/blog/difference-between-ldap-ad

## <span style="color:red">*</span> A18 - To what extent does the specification allow for partial implementations?

**EIF Recommendation 8:** Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

Partial implementations refer to the application of specifications, not in their whole, but part of the requirements or features defined in the documentation.

It can also be understood as the implementation of different profiles, which is also related to a certain set of requirements depending on the context of implementation.

○ Not Answered
○ Not Applicable
○ The specification is only meant to be used as a whole.
○ The specification could be partially implemented but does not make specific provisions towards this.
○ The specification could be partially implemented but includes only guidelines towards this rather than sets of requirements.
● The specification explicitly foresees sets of requirements that can be implemented incrementally.
○ The specification explicitly foresees sets of requirements that can be implemented incrementally or separately.

<span style="color:red">*</span> Justification

> LDAP has some core functionalities that can't be implemented separately. Nonetheless, the specification has beed developed to support some requirements that are not mandatory but recommended. For example, some security layers such as the SASL can be implemented, but is not required to run the specification.
>
> LDAP SASL reference:
> https://datatracker.ietf.org/doc/html/rfc2444

## <span style="color:red">*</span> A19 - Does the specification allow customisation?

**EIF Recommendation 8:** Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

A clear example of customizations is Core Vocabularies, which define a set of general requirements that could fit in any context and allow for the customization to fit specific business requirements in the implementation.

- ○ Not Answered
- ○ Not Applicable
- ● NO
- ○ YES

**\* Justification**

> In order to meet the standard protocol needs, LDAP can not be customised.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

## **\* A20 - Does the specification allow extension?**

**EIF Recommendation 8:** Do not impose any technological solutions on citizens, businesses, and other administrations that are technology-specific or disproportionate to their real needs.

A clear example of extension is Core Vocabularies, which are a set of general requirements fitting in different contexts that can complement each other in a sort of extensibility practice to fit specific business requirements in any implementation.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

> Extensibiltiy is one of the key factors that make LDAP a popular standard protocol. LDAP functionalities can be extended depending on the developer needs. Common extensions are the SASL Authentication mechanism or the Dynamic Password Verifiers.
>
> LDAP IETF Extension:
> https://datatracker.ietf.org/wg/ldapext/about/

## **\* A21 - To what extent does the specification enable data portability between systems/applications supporting the implementation of European public services?**

**EIF Recommendation 9:** Ensure data portability, namely that data is easily transferable between systems and applications supporting the implementation and evolution of European public services without unjustified restrictions, if legally possible.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification prevents or does not support data portability.
- ○ The specification neither addresses data portability nor prevents it.
- ○ The specification addresses data portability but without specific provisions to enable it.
- ○ The specification introduces certain aspects that can contribute to enabling data portability.
- ● The specification explicitly addresses and enables data portability.

**\* Justification**

> LDAP is an application protocol for accessing and maintaining distributed directory information services over the net, it is independent of implementation.
> The specification allows many applications and services to connect to the LDAP server to validate users, which reduces the administrative burden of the system administrators and the users. As it is widely supported the implementation of the LDAP would not hamper the interoperability between systems and services.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

**\* A22 - To what extent does the specification enable data portability between systems/applications supporting the evolution of European public services?**

**EIF Recommendation 9:** Ensure data portability, namely that data is easily transferable between systems and applications supporting the implementation and evolution of European public services without unjustified restrictions, if legally possible.

- ○ Not Answered
- ○ Not Applicable
- ○ The specification prevents or does not support data portability.
- ○ The specification neither addresses data portability nor prevents it.
- ○ The specification addresses data portability but without specific provisions to enable it.
- ○ The specification introduces certain aspects that can contribute to enabling data portability.
- ● The specification explicitly addresses and enables data portability.

**\* Justification**

> LDAP is an application protocol for accessing and maintaining distributed directory information services over the net, it is independent of implementation.
> The specification allows many applications and services to connect to the LDAP server to validate users, which reduces the administrative burden of the system administrators and the users. As it is widely supported the implementation of the LDAP would not hamper the interoperability between systems and services.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

# EIF PRINCIPLES RELATED TO GENERIC USER NEEDS AND EXPECTATIONS

This category includes all underlying principles from the EIF which are related to user needs. Principles included here are user-centricity (UP6), inclusion and accessibility (UP7), security and privacy (UP8), and multilingualism (UP9).

## User-Centricity

**\* A23 - To what extent does the specification allow relevant information to be reused when needed?**

EIF Recommendation 13: As far as possible under the legislation in force, ask users of European public services once-only and relevant-only information.

The Once-Only Principle is related to making the operations or transactions between administrations and stakeholders more efficient. It implies avoiding the provision of certain data or information twice or more when this information is already available for public administrations.
First European Data Space, Once Only Technical System (OOTS):
https://ec.europa.eu/digital-building-blocks/wikis/display/DIGITAL/Once+Only+Technical+System
Additional and relevant information can be found here: https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/Once+Only+Principle

- ○ Not Answered
- ○ Not Applicable
- ● Information needs to be provided whenever this is needed.
- ○ There is limited reuse of provided information.
- ○ Provided information is reused, but this is not consistently done.
- ○ Provided information is reused, but not in all scenarios.
- ○ Information is provided once-only and reused as needed.

**\* Justification**

> The once-only principle is an e-government concept that aims to ensure that citizens, institutions, and companies only have to provide certain standard information to the authorities and administrations once. LDAP fosters the OOP in terms of accessibility by allowing administrations stakeholders to keep the contact and access to different distributed services without providing personal data for authentication more than strictly needed.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

## Inclusion and Accessibility

**\* A24 - To what extent does the specification enable the e-accessibility?**

EIF Recommendation 14: Ensure that all European public services are accessible to all citizens, including persons with disabilities, the elderly, and other disadvantaged groups. For digital public services, public administrations should comply with e-accessibility specifications that are widely recognised at the European or international level.

Examples of specifications addressing e-accessibility are, for instance, WAI-ARIA (https://www.w3.org/WAI/standards-guidelines/aria/) included within Web Content Accessibility Guidelines (WCAG) Overview (https://www.w3.org/WAI/standards-guidelines/wcag/).

- ○ Not Answered
- ● Not Applicable
- ○ The specification prevents or does not support e-accessibility.
- ○ The specification neither addresses e-accessibility nor prevents it.
- ○

The specification can contribute and promote e-accessibility, but it is not its main purpose.

⦿ The specification can enable e-accessibility if combined with other specifications.

⦿ The specification explicitly addresses and enables e-accessibility.

* Justification

> The purpose of LDAP is not related to e-accessibility. Therefore, this criterion is considered not applicable specification.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

## Security and Privacy

* **A25 - To what extent does the specification enable the secure exchange of data?**

**EIF Recommendation 15:** Define common security and privacy framework and establish processes for public services to ensure secure and trustworthy data exchange between public administrations and in interactions with citizens and businesses.

Relates to the actions that Public Administrations establish concerning sensitive information for the proper delivery of public services. The different actions imply the reception, classification, and exchange of such information.

⦿ Not Answered

⦿ Not Applicable

⦿ The specification prevents or does not support the secure and trustworthy exchange of data.

⦿ The specification introduces certain aspects that can contribute to enabling the secure exchange of data.

⦿ The specification addresses data security and trustworthy data exchange but does not foresee specific provisions to enable them.

⦿ The specification addresses data security and trustworthy data exchange but specific provisions to enable them are limited.

🔘 The specification explicitly addresses and enables the secure and trustworthy exchange of data.

* Justification

> The specification is excellent for accessing and maintaining distributed directory information services over internet. The main function of LDAP is to help users connect to their IT resources safely. Because of this, they are often used in public administrations and have become staples of the identity management industry.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

* **A26 - To what extent does the specification enable the secure processing of data?**

**EIF Recommendation 15:** Define common security and privacy framework and establish processes for public services to ensure secure and trustworthy data exchange between public administrations and in interactions with citizens and businesses.

22

Relates to the actions that Public Administrations establish concerning sensitive information for the proper delivery of public services. The different actions imply the reception, classification, and exchange of such information.

○ Not Answered

○ Not Applicable

○ The specification prevents or does not support the secure and trustworthy processing of data.

○ The specification introduces certain aspects that can contribute to enabling the secure processing of data.

○ The specification addresses data security and trustworthy data processing but does not foresee specific provisions to enable them.

○ The specification addresses data security and trustworthy data processing but specific provisions to enable them are limited.

● The specification explicitly addresses and enables the secure and trustworthy processing of data.

**\* Justification**

LDAP provides communication between clients and AD, which means it is responsible for transporting highly sensitive information. For that matter LDAP can be developed to meet high performance security standards, including those related to data processing. An example for that could be the layer/transport layer security (SSL/TLS) encryption can add vital protection to information shared through LDAP and enhance the security of organizations' communication channels.

LDAP Authentication methods and security mechanisms:
https://www.rfc-editor.org/rfc/rfc4513.txt

## Multilingualism

**\* A27 - To what extent could the specification be used in a multilingual context?**

**EIF Recommendation 16:** Use information systems and technical architectures that cater to multilingualism when establishing a European public service. Decide on the level of multilingualism support based on the needs of the expected users.

○ Not Answered

● Not Applicable

○ The specification cannot be used in a multilingual context.

○ The specification could be used in a multilingual context but has no specific provisions to facilitate this.

○ The specification foresees limited support for multilingualism.

○ The specification foresees support for multilingualism but this is not complete.

○ The specification is designed to fully support multilingualism.

**\* Justification**

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

LDAP IETF reference:
https://tools.ietf.org/html/rfc4511

# EIF FOUNDATION PRINCIPLES FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS

This category includes the criteria aiming to evaluate principles related to collaboration amongst public organisations, business, and citizens. This is related to the underlying principles of administrative simplification (UP10), preservation of information (UP11), and assessment of effectiveness and efficiency (UP12).

## Administrative Simplification

**\* A28 - Does the specification simplify the delivery of European public services?**

**EIF Recommendation 17:** Simplify processes and use digital channels whenever appropriate for the delivery of European public services, to respond promptly and with high quality to users' requests and reduce the administrative burden on public administrations, businesses and citizens.

A positive answer would cover every specification easing digitalisation and administratice simplification by for example helping an Identification service access a Digital Portfolo with citizens information.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

> The specification allows user to access and maintain distributed directories information over the Internet, which reduces the administrative burden of the system administrators and the users. By ensuring the access to different directory services, it fosters the implementation of digital services, supporting the principle of digital-first.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

**\* A29 - Does the specification enable digital service delivery channels?**

**EIF Recommendation 17:** Simplify processes and use digital channels whenever appropriate for the delivery of European public services, to respond promptly and with high quality to users' requests and reduce the administrative burden on public administrations, businesses and citizens.

A positive answer would cover that a specification eases or provides better means of delivering public services as a good asset for digitalisation and administrative simplification. For instance, a specification directly related to API performance easing and improving the delivery of a Digital Public Service through an API.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

* Justification

> The specification allows user to access and maintain distributed directories information over the Internet, which reduces the administrative burden of the system administrators and the users. By ensuring the access to different directory services, it fosters the implementation of digital services, supporting the principle of digital-first.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

## Preservation of Information

* **A30 - To what extent does the specification enable the long-term preservation of data/information /knowledge (electronic records included)?**

**EIF Recommendation 18:** Formulate a long-term preservation policy for information related to European public services and especially for information that is exchanged across borders.

Relates to the capacity of the specification to contribute to the long-term preservation of information.

- ○ Not Answered
- ● Not Applicable
- ○ The specification prevents or does not support long-term preservation.
- ○ The specification neither addresses the long-term preservation nor prevents it.
- ○ The specification addresses the long-term preservation of electronic resources (information, data, etc) in a limited manner.
- ○ The specification addresses long-term preservation of electronic resources (information, data, etc), but not in a complete manner.
- ○ The specification explicitly addresses and enables long-term preservation.

* Justification

> The purpose of LDAP is not related to long term preservation of electronic records. Therefore, this criterion is considered not applicable to this specification.
>
> LDAP IETF reference:
> https://tools.ietf.org/html/rfc4511

## Assessment of Effectiveness and Efficiency

* **A31 - To what extent are there assessments of the specification's effectiveness?**

**EIF Recommendation 19:** Evaluate the effectiveness and efficiency of different interoperability solutions and technological options considering user needs, proportionality, and balance between costs and benefits.

Related to the degree to which the specification is effective while using it. There are indirect methods to determine that the specification is effective, for instance when a solution that has an effective performance and uses the specification to deliver the expected service.

Effectiveness: *the extent to which the specifications reach the expected action according to its purpose.*

- ○ Not Answered
- ○ Not Applicable
- ○ There are no such assessments.
- ○ There are such assessments that indirectly address the specification.
- ○ There are such assessments evaluating digital solutions' effectiveness that involve the specification.
- ○ There are such assessments addressing the specification and its effectiveness together with other specifications.
- ● There are such assessments directly addressing the specification.

**\* Justification**

> There are existing documentation and studies assessing the effectiveness and efficiency of LDAP. It is a comparison between LDAP 2 and LDAP 3. As well, the study shows the improvement of the different versions over time as resulting in more efficient protocol.
>
> Difference between LDAP2 and LDAP3:
> https://docs.microsoft.com/en-us/previous-versions/windows/desktop/ldap/differences-between-ldap-2-andldap-3
>
> Assessment of LDAP services in high availability environment:
> https://www.infona.pl/resource/bwmeta1.element.baztech-32ec800f-6db2-4a4a-be0a-bcb3fae16d23/tab/summary

## \* A32 - To what extent are there assessments of the specification's efficiency?

**EIF Recommendation 19:** Evaluate the effectiveness and efficiency of different interoperability solutions and technological options considering user needs, proportionality, and balance between costs and benefits.

Related to the good use of time and resources not wasted unnecessarily by a specification being used. There are indirect methods to determine that the specification is efficient, for instance, a solution delivering a service with an efficient performance that uses the specification.

Efficiency: times and means needed to achieve the results using the specification.

- ○ Not Answered
- ○ Not Applicable
- ○ There are no such assessments.
- ○ There are such assessments that indirectly address the specification.
- ○ There are assessments evaluating digital solutions' efficiency that involve the specification.
- ○ There are such assessments addressing the specification and its efficiency together with other specifications.
- ● There are such assessments directly addressing the specification.

**\* Justification**

> There are existing documentation and studies assessing the effectiveness and efficiency of LDAP. It is a comparison between LDAP 2 and LDAP 3. As well, the study shows the improvement of the different versions over time as resulting in more efficient protocol.
>
> Difference between LDAP2 and LDAP3:

https://docs.microsoft.com/en-us/previous-versions/windows/desktop/ldap/differences-between-ldap-2-andldap-3

Assessment of LDAP services in high availability environment:
https://www.infona.pl/resource/bwmeta1.element.baztech-32ec800f-6db2-4a4a-be0a-bcb3fae16d23/tab/summary

# EIF INTEROPERABILITY LAYERS

This category is aligned with the related interoperability models described in the EIF and apply to all the public services. It includes six layers: interoperability governance, integrated public service governance, legal interoperability, organisational interoperability, semantic interoperability, and technical interoperability covered by criteria A2 to A10 under the Openness category.

## Interoperability Governance

**\* A33 - Is the (or could it be) specification mapped to the European Interoperability Architecture (EIRA)?**

**EIF Recommendation 20:** Ensure holistic governance of interoperability activities across administrative levels and sectors.

The EIRA defines the required capabilities for promoting interoperability as a set of Architecture Building Blocks (ABBs). The association of specification to these ABBs means the capacity to enable Legal, Organisational, Semantic, or Technical aspects needed for the development of interoperable public services. This association can be taken from ELIS the EIRA Library of Interoperability Specifications (ELIS) but also can be established ad-hoc.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

\* Justification

> LDAP is already associated with EIRA ABBs in the European Library Of Specifications (ELIS). More specifically, LDAP can define the interoperability aspects of the "Registration Service" and "Service Registry Component" ABBs of the EIRA Technical Infrastructure View.
>
> EIRA Library of Interoperability Specifications (ELIS):
> https://joinup.ec.europa.eu/solution/elis/release/v100

**\* A34 - To what extent can the conformance of the specification's implementations be assessed?**

**EIF Recommendation 21:** Put in place processes to select relevant standards and specifications, evaluate them, monitor their implementation, check compliance and test their interoperability.

Relates to the implementation of the specification being conformant with the requirements established in the text of the specification. There are different methods to ensure the conformance of an implementation: check manually if

the implementation meets the requirements in the specification text (if any), use additional methods or resources provided to this purpose or use specific tools provided by the SDO developing the specification.

○ Not Answered

○ Not Applicable

○ The specification does not include a definition of conformance.

○ The specification defines conformance but not as a set of measurable requirements.

○ The specification defines conformance as requirements that can be measured manually.

● The specification defines conformance as requirements with resources to enable automated measurement.

○ The specification is complemented by a conformance testing platform to allow testing of implementations.

**\* Justification**

> There is no conformity test coming from the IETF, but there are existing free online documents that will help you validate LDAP specification when it is implemented. However, it is a manual process that does not provide 100% automatic validation.
>
> IBM testing LDAP authentication settings:
> https://www.ibm.com/support/knowledgecenter/SSZQFR_2.2.5/doc/iwd/ldap_test_settings.html
>
> Test LDAP configurations:
> https://docs.microfocus.com/itom/Operations_Orchestration:10.80/Develop/Working_with_API/Testing_LDAP_Configurations
>
> LDAP Tools:
> https://ldap.com/ldap-tools/

**\* A35 - Is the specification recommended by a European Member State?**

**EIF Recommendation 23:** Consult relevant catalogues of standards, specifications, and guidelines at the national and EU level, in accordance with your NIF and relevant DIFs, when procuring and developing ICT solutions.

Recommended specifications are these specifications that the Member States provide as examples for the implementation of certain digital public services or for being used when procuring these digital public services or solutions.

○ Not Answered

○ Not Applicable

○ NO

● YES

**\* Justification**

> 9 Member States are recommending LDAP in their ICT National Catalogues. This Member States are Croatia, France, Germany, Greece, Malta, Netherlands, Spain, Sweden and Cyprus
>
> CAMSS List of Standards:
> https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/camss-list-standards

**\* A36 - Is the specification selected for its use in a European Cross-border project/initiative?**

- ◯ Not Answered
- ◯ Not Applicable
- ◯ NO
- ⦿ YES

\* Justification

> The specification is included in 9 Member States' catalogues of recommended specifications. This Member States are Croatia, France, Germany, Greece, Malta, Netherlands, Spain, Sweden and Cyprus.
>
> CAMSS List of Standards:
> https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/camss-list-standards

### \* A37 - Is the specification included in an open repository/catalogue of standards at national level?

- ◯ Not Answered
- ◯ Not Applicable
- ◯ NO
- ⦿ YES

\* Justification

> The specification is included in 9 Member States' catalogues of recommended specifications. This Member States are Croatia, France, Germany, Greece, Malta, Netherlands, Spain, Sweden and Cyprus.
>
> CAMSS List of Standards:
> https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/camss-list-standards

### \* A38 - Is the specification included in an open repository/catalogue of standards at European level?

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

**\* Justification**

> After being evaluated compliant with the regulation on standardisation 1025/2012, LDAPv3 has been identified by Commission Implementing Decision and included in the European list of ICT Standards for eprocurement. The specification can also be found in the Joinup repository.
>
> ICT technical specifications:
> https://ec.europa.eu/growth/single-market/european-standards/ict-standardisation/ict-technicalspecifications_e

## Legal Interoperability

**\* A39 - Is the specification a European Standard?**

European Standards are those standards developed by certain organisations dedicated to this purpose. CEN, CENELEC, and ETSI are the principal organisations and all of them are developing their standards under the basis of meeting the requirements established within the European Standardisation Regulation. CEN-CENELEC homepage: https://www.cencenelec.eu/

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ◉ YES

**\* Justification**

> LDAP appears in the Commission Implementing Decision of 3 April 2014 on the identification of ICT technical specifications eligible for referencing in public procurement. The drective points out the urgency to set standards with the purpose of gaining interoperability between European member states. LDAPv3 appears as one of the eligible specifications that has the potential to foster interoperability, therefore, becoming a European Standard.
>
> LDAP IETF reference:
> https://datatracker.ietf.org/doc/html/rfc4511
>
> Commission Implementing Decision of 3 April 2014 on the identification of ICT technical specifications eligible for referencing i public procurement :
> https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014D0188

# Organisational Interoperability

**\* A40 - Does the specification facilitate the modelling of business processes?**

**EIF Recommendation 28:** Document your business processes using commonly accepted modelling techniques and agree on how these processes should be aligned to deliver a European public service.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

> LDAP gives access to distributed directory services according to the data and services models provides by the X.500 family of standards. Therefore, the specification facilitates the modeling of business processes.
>
> LDAP IETF reference:
> https://datatracker.ietf.org/doc/html/rfc4511
>
> X.500 reference:
> https://www.itu.int/rec/dologin_pub.asp?lang=e&id=T-REC-X.500-201910-I!!PDF-E&type=items

**\* A41 - To what extent does the specification facilitate organisational interoperability agreements?**

**EIF Recommendation 29:** Clarify and formalise your organisational relationships for establishing and operating European public services.

Relates to specifications' capacities to help and ease the creation and formalisation of Interoperability agreements. E.g. Memorandums of Understanding (MoUs), Services Level Agreements (SLAs).

- ○ Not Answered
- ○ Not Applicable
- ○ The specification's definition hinders the drafting of such agreements.
- ○ The specification makes no provisions that would facilitate the drafting of such agreements.
- ○ The specification defines certain elements to facilitate such agreements.
- ○ The specification defines most elements to facilitate such agreements.
- ● The specification explicitly identifies all elements to be used in drafting such agreements.

**\* Justification**

> LDAP appears in the Commission Implementing Decision "on the identification of ICT technical specifications eligible for referencing inpublic procurement". In this document, LDAP is said to be a stable technology that has the potential to increase interoperability and constitutes a de-facto standard for authentication, For that matter, the LDAP standard can facilitate organisational interoperability agreements.
>
> Commission Implementing Decision of 3 April 2014 on the identification of ICT technical specifications eligible for referencing in public procurement:
> https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014D0188

# Semantic Interoperability

**\* A42 - Does the specification encourage the creation of communities along with the sharing of their data and results on national platforms?**

**EIF Recommendation 32:** Support the establishment of sector-specific and cross-sectoral communities that aim to create open information specifications and encourage relevant communities to share their results on national and European platforms.

Relates to specifications that are narrowly related to the data/information being exchanged, its format, and structure. It would allow a common method/mechanism to improve its reuse and exchange removing possible limitations. An example of it could be RDF, which is used to describe information and its metadata using specific syntax and serialisation.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

> The OpenLDAP Software is a popular open source implementation of LDAP which is spononsored by big companies like Google or Hewlett-Packard. The OpenLDAP Community operates two IRC channels centered around discussions related to LDAP development.
>
> OpenLDAP Community:
> https://www.openldap.org/

**\* A43 - Does the specification encourage the creation of communities along with the sharing of their data and results on European platforms?**

**EIF Recommendation 32:** Support the establishment of sector-specific and cross-sectoral communities that aim to create open information specifications and encourage relevant communities to share their results on national and European platforms.

Relates to specifications that are narrowly related to the data/information being exchanged, its format, and structure. It would allow a common method/mechanism to improve its reuse and exchange removing possible limitations. An example of it could be RDF, which is used to describe information and its metadata using specific syntax and serialisation.

- ○ Not Answered
- ○ Not Applicable
- ○ NO
- ● YES

**\* Justification**

> Joinup offers several services that aim to help e-Government professionals share their experience with each other. Joinup supports them to find, choose, re-use, develop and implement interoperability solutions. LDAP appears in many Joinup entries as a discussion topic, and the specification is distributed can also be found in the platform.

LDAP distribution in Joinup:
https://joinup.ec.europa.eu/collection/dutch-standardisation-forum-comply-or-explain-standards/solution
/lightweight-directory-access-protocol

**Useful links**

CAMSS Joinup Page (https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss)

CAMSS Library of Assessments (https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/camss-assessments-library)

CAMSS Assessment EIF Scenario - User Guide (https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/camss-assessment-eif-scenario/camss-assessment-eif-scenario-quick-user-guide)

**Contact**

Contact Form

# CAMSS Assessment EIF Scenario v5.1.0 - Results

## CAMSS Assessment Result

Thank you for your contribution.

The score of the specification related to the scenario under which it is being evaluated depends on the scores achieved in each section of the survey. Please see the example below for guidance.

The following table shows the 'compliance levels' that a specification can reach depending on the assessment score.

**EIF Scenario Compliance Level Conversion Table**

| Section | Ad-hoc | Opportunistic | Compliance Level Essential | Sustainable | Seamless |
|---|---|---|---|---|---|
| **Principles setting the context for EU Actions on Interoperability** | 20 | 40 | 50 | 80 | 90 |
| **EIF Core Interoperability Principles** | 0 to 440 | 441 to 880 | 881 to 1320 | 1321 to 1760 | 1761 to 2200 |
| **EIF Principles Related to generic user needs and expectations** | 0 to 100 | 101 to 200 | 201 to 300 | 301 to 400 | 401 to 500 |

| | | | | | |
|---|---|---|---|---|---|
| **EIF Foundation principles for cooperation among public administrations** | 0 to 100 | 101 to 200 | 201 to 300 | 301 to 400 | 401 to 500 |
| **EIF Interoperability Layers** | 0 to 220 | 221 to 440 | 441 to 660 | 661 to 880 | 881 to 1100 |

The table below expresses the range of the score per section. When used in combination with the table above, the total score can be interpreted. See the example below for guidance.

**Section Compliance Conversion Table**

| Compliance Level | Description |
|---|---|
| **Ad-hoc** | Poor level of conformance with the EIF - The specification does not cover the requirements and recommendations set out by the EIF in this area. |
| **Opportunistic** | Fair level of conformance with the EIF - The specification barely covers the requirements and recommendations set out by the European Interoperability Framework in this area. |
| **Essential** | Essential level of conformance with the EIF - The specification covers the basic aspects set out in the requirement and recommendations from the European Interoperability Framework. |
| **Sustainable** | Good level of conformance with the EIF scenario - The specification covers all the requirements and recommendations set out by the European Interoperability Framework in this area. |
| **Seamless** | Leading practice of conformance level with the EIF - The specification fully covers the requirements and recommendations set out by the European Interoperability Framework in this area. |

**Example – How to find the final Compliance Level**

Using the score reached after the initial assessment, the interpretation can be made as follows.

1. In the summary table, observe the score for each section, e.g. EIF Core Interoperability Principles has 2200 points.

2. In the middle table – the Section Compliance Conversion Table – see that this number correlates to a column. In our example, the 2200 points of Core Interoperability Principles fall in the EIF Core Interoperability Principles row, and '1761 to 2200' point range, placing it in the column 'Compliance **Seamless**'.

3. Next, in the top table – the EIF Scenario Compliance Level Conversion Table – we see Compliance Level "**Seamless**", and from its description that the specification for the EIF Core Interoperability Principles 'fully covers the requirements and recommendations set out by the European Interoperability Framework in this area.'.

For additional calculation of the assessment strength, please follow the instruction provided in the User Guide, found [here](#).

## Summary

**Your Score**     4100

**Maximum Score**     4300
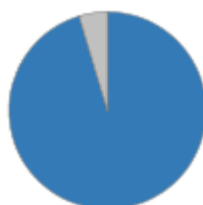
| Section | Score for this Section | |
|---|---|---|
| EIF PRINCIPLES SETTING THE CONTEXT FOR EU ACTIONS ON INTEROPERABILITY | 100 /100 | |
| EIF CORE INTEROPERABILITY PRINCIPLES | 2000 /2100 | |
| EIF PRINCIPLES RELATED TO GENERIC USER NEEDS AND EXPECTATIONS | 420 /500 | |
| EIF FOUNDATION PRINCIPLES FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS | 500 /500 | |
| EIF INTEROPERABILITY LAYERS | 1080 /1100 | |

## Scores by Question

# EIF PRINCIPLES SETTING THE CONTEXT FOR EU ACTIONS ON INTEROPERABILITY

Score for this Section: 100/100

**A1 - To what extent has the specification been included in a national catalogue from a Member State whose National Interoperability Framework has a high performance on interoperability according to National Interoperability Framework Observatory factsheets?**

| Your answer | ✔ The specification has been included within the catalogue of a Member State with a higher performance than stated in the Digital Public Administration Factsheets from the NIFO. | 100 out of 100 points | |
|---|---|---|---|

# EIF CORE INTEROPERABILITY PRINCIPLES

Score for this Section: 2000/2100

**A2 - Does the specification facilitate the publication of open data?**

| Your answer | ✔ Not Applicable | 100 out of 100 points | |
|---|---|---|---|

**A3 - To what extent do stakeholders have the opportunity to contribute to the development of the specification?**

| Your answer | ✔ The working group is open to all without specific fees, registration, or other conditions. | 100 out of 100 points | |
|---|---|---|---|

**A4 - To what extent is a public review part of the release lifecycle?**

| Your answer | ✔ All major and minor releases foresee a public review during which collected feedback is publicly visible. | 100 out of 100 points | |
|---|---|---|---|

**A5 - Is the specification available with any restrictions related to Fair, Reasonable, and Non-Discriminatory ((F)RAND)?**

| Your answer | ✔ YES | 100 out of 100 points | |
|---|---|---|---|

**A6 - Is the specification licensed on a royalty-free basis?**

Your answer  ✔ YES

100 out of 100 points

**A7 - To what extent is the specification sufficiently mature for its use in the development of digital solutions/services?**

Your answer  ✔ The specification, in addition to having major releases available, has published documentation on its supporting processes (e.g. change management and release management).

100 out of 100 points

**A8 - To what extent has the specification sufficient market acceptance for its use in the development of digital solutions/services?**

Your answer  ✔ The specification does not have market acceptance because it is directly used to create innovative solutions.

100 out of 100 points

**A9 - To what extent has the specification support from at least one community?**

Your answer  ✔ There is a community tasked to provide public support linked to the specification and manage its maintenance.

100 out of 100 points

**A10 - To what extent does the specification enable the visibility of administrative procedures, rules data, and services?**

Your answer  ✔ Not Applicable

100 out of 100 points

**A11 - To what extent does the specification scope comprehensibly administrative procedures, rules data, and services?**

Your answer  ✔ The specification actively promotes and supports comprehensibility.

100 out of 100 points

**A12 - To what extent does the specification enable the exposure of interfaces to access the public administration's services?**

| Your answer | ✅ Not Applicable | 100 out of 100 points |

**A13 - To what extent does the specification ensure the protection of personal data managed by Public Administrations?**

| Your answer | ✅ The specification explicitly addresses data protection and its alignment to relevant regulations. | 100 out of 100 points |

**A14 - To what extent is the specification usable beyond the business-specific domain, allowing its usage across business domains?**

| Your answer | ✅ The specification is domain-agnostic, designed to be used in any domain. | 100 out of 100 points |

**A15 - To what extent is the specification usable beyond the business-specific domain, allowing its implementation across business domains?**

| Your answer | ✅ The specification is domain-agnostic, designed to be implemented in any domain. | 100 out of 100 points |

**A16 - Is the specification technology agnostic?**

| Your answer | ✅ YES | 100 out of 100 points |

**A17 - Is the specification platform agnostic?**

| Your answer | ✅ YES | 100 out of 100 points |

**A18 - To what extent does the specification allow for partial implementations?**

| Your answer | ✅ The specification explicitly foresees sets of requirements that can be implemented incrementally. | 80 out of 100 points |

**A19 - Does the specification allow customisation?**

| | |
|---|---|
| Your answer | ❌ NO |

20 out of 100 points

## A20 - Does the specification allow extension?

| | |
|---|---|
| Your answer | ✔️ YES |

100 out of 100 points

## A21 - To what extent does the specification enable data portability between systems/applications supporting the implementation of European public services?

| | |
|---|---|
| Your answer | ✔️ The specification explicitly addresses and enables data portability. |

100 out of 100 points

## A22 - To what extent does the specification enable data portability between systems/applications supporting the evolution of European public services?

| | |
|---|---|
| Your answer | ✔️ The specification explicitly addresses and enables data portability. |

100 out of 100 points

# EIF PRINCIPLES RELATED TO GENERIC USER NEEDS AND EXPECTATIONS

Score for this Section: 420/500

## A23 - To what extent does the specification allow relevant information to be reused when needed?

| | |
|---|---|
| Your answer | ❌ Information needs to be provided whenever this is needed. |

20 out of 100 points

## A24 - To what extent does the specification enable the e-accessibility?

| | |
|---|---|
| Your answer | ✔️ Not Applicable |

100 out of 100 points

## A25 - To what extent does the specification enable the secure exchange of data?

| | |
|---|---|
| Your answer | ✔ The specification explicitly addresses and enables the secure and trustworthy exchange of data. |

100 out of 100 points

### A26 - To what extent does the specification enable the secure processing of data?

| | |
|---|---|
| Your answer | ✔ The specification explicitly addresses and enables the secure and trustworthy processing of data. |

100 out of 100 points

### A27 - To what extent could the specification be used in a multilingual context?

| | |
|---|---|
| Your answer | ✔ Not Applicable |

100 out of 100 points

# EIF FOUNDATION PRINCIPLES FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS

Score for this Section: 500/500

### A28 - Does the specification simplify the delivery of European public services?

| | |
|---|---|
| Your answer | ✔ YES |

100 out of 100 points

### A29 - Does the specification enable digital service delivery channels?

| | |
|---|---|
| Your answer | ✔ YES |

100 out of 100 points

### A30 - To what extent does the specification enable the long-term preservation of data/information /knowledge (electronic records included)?

| | |
|---|---|
| Your answer | ✔ Not Applicable |

100 out of 100 points

### A31 - To what extent are there assessments of the specification's effectiveness?

| Your answer | ✔ There are such assessments directly addressing the specification. | 100 out of 100 points |
| --- | --- | --- |

**A32 - To what extent are there assessments of the specification's efficiency?**

| Your answer | ✔ There are such assessments directly addressing the specification. | 100 out of 100 points |
| --- | --- | --- |

# EIF INTEROPERABILITY LAYERS

Score for this Section: 1080/1100

**A33 - Is the (or could it be) specification mapped to the European Interoperability Architecture (EIRA)?**

| Your answer | ✔ YES | 100 out of 100 points |
| --- | --- | --- |

**A34 - To what extent can the conformance of the specification's implementations be assessed?**

| Your answer | ✔ The specification defines conformance as requirements with resources to enable automated measurement. | 80 out of 100 points |
| --- | --- | --- |

**A35 - Is the specification recommended by a European Member State?**

| Your answer | ✔ YES | 100 out of 100 points |
| --- | --- | --- |

**A36 - Is the specification selected for its use in a European Cross-border project/initiative?**

| Your answer | ✔ YES | 100 out of 100 points |
| --- | --- | --- |

**A37 - Is the specification included in an open repository/catalogue of standards at national level?**

| Your answer | ✔ YES | 100 out of 100 points |
| --- | --- | --- |

**A38 - Is the specification included in an open repository/catalogue of standards at European level?**

| Your answer | ✔ YES | 100 out of 100 points | |
|---|---|---|---|

**A39 - Is the specification a European Standard?**

| Your answer | ✔ YES | 100 out of 100 points | |
|---|---|---|---|

**A40 - Does the specification facilitate the modelling of business processes?**

| Your answer | ✔ YES | 100 out of 100 points | |
|---|---|---|---|

**A41 - To what extent does the specification facilitate organisational interoperability agreements?**

| Your answer | ✔ The specification explicitly identifies all elements to be used in drafting such agreements. | 100 out of 100 points | |
|---|---|---|---|

**A42 - Does the specification encourage the creation of communities along with the sharing of their data and results on national platforms?**

| Your answer | ✔ YES | 100 out of 100 points | |
|---|---|---|---|

**A43 - Does the specification encourage the creation of communities along with the sharing of their data and results on European platforms?**

| Your answer | ✔ YES | 100 out of 100 points | |
|---|---|---|---|

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| | CAMSS Joinup Page |
| Useful links | CAMSS Library of Assessments |
| | CAMSS Assessment EIF Scenario - User Guide |

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