

ASSESSMENT SUMMARY v1.0.0

Lightweight Directory Access Protocol (LDAP)¹

Internet Engineering Task Force (IETF)²

¹ <https://tools.ietf.org/html/rfc4511>

² <https://ietf.org>

Change Control

Modification		Details
Version 1.0.0		
Initial version		

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1. INTRODUCTION

The present document is a summary of the assessment of LDAP carried out by CAMSS using the CAMSS EIF assessment scenario. The purpose of this scenario is assessing the compliance of a standard or specification with the European Interoperability Framework (EIF)³.

2. ASSESSMENT SUMMARY

The Lightweight Directory Access Protocol (LDAP) is an application protocol for accessing and maintaining distributed directory information services over an Internet Protocol network. The specification allows many applications and services to connect to the LDAP server to validate users. It is developed and maintained by the Internet Engineering Task Force (IETF).

2.1. 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**

LDAP is included in 3 national catalogues of recommended specifications. They belong to the Netherlands, Spain, and Sweden. The National Interoperability Framework (NIF) of these Member States 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)⁴ factsheets.

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

- **Openness**

LDAP is an open specification available for everyone to study or use. In IETF, Stakeholders have the opportunity to contribute to the development of LDAP, and the decision-making process includes a public review.

Additionally, LDAP has a significant market acceptance which demonstrates that it is mature enough for the development of products and services, including for the creation of innovative solutions. However, the purpose of the specification is not related to an area of application that is key for fostering interoperability, the publication of public data as open data.

- **Transparency**

The aim of the LDAP is not related to transparency purposes.

³ https://ec.europa.eu/isa2/eif_en

⁴ <https://joinup.ec.europa.eu/collection/national-interoperability-framework-observatory-nifo/nifo-factsheets>

- **Reusability**
LDAP is a business domain agnostic specification that can be reused in a cross-domain way. Moreover, it is available for its use and implementation at the IETF's webpage defined in several RFCs and LDAP can be found for free along within the European Collaborative Platform, Joinup.
- **Technological neutrality and data portability**
LDAP can be used independently of any other technical specifications or operating system. However, it is often used to complement Active Directory (AD) as a directory services protocol. Moreover, the specification is proportionate to the needs of its user and it fosters data portability between systems and applications supporting the implementation and evolution of European public services when legally possible.

The specification does not support the principles related to generic user needs and expectations:

- **User-centricity**
LDAP fosters the OOP by providing and supporting the authentication methods, which allow systems administrators and users to reduce the exchange of personal data while accessing different directory services.
- **Inclusion and accessibility**
The purpose of LDAP is not related to e-accessibility. Therefore, this criterion is considered not applicable to this specification.
- **Security and privacy**
The specification fosters the secure and trustworthy data exchange between citizens and businesses, and public administrations because its main function is to help users connect to their IT resources safely.
- **Multilingualism**
The purpose of LDAP 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**
LDAP fosters the creation and use of digital services that foster the reduction of the administrative burden by avoiding the use of non-digital methods of communication.
- **Preservation of information**
LDAP does not foster the long-term preservation of electronic records and other kinds of information. The purpose of the specification is not related to the preservation of information.

- **Assessment of effectiveness and efficiency**

There are already existing studies or documentation assessing the LDAP in terms of effectiveness and efficiency⁵. The information provided mainly consists of the comparison between versions of the protocol that show up the improvements over time, which includes the effectiveness and efficiency.

2.2. 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 supports the implementation of digital public services complying with the EIF interoperability model:

- **Interoperability governance**

8 Member States are recommending LDAP in their ICT National Catalogues. Additionally, LDAP is already associated with European Interoperability Reference Architecture (EIRA) ABBs in the European Library of Specifications (ELIS). More specifically, LDAP can define the interoperability aspects of the Service Registration Service and Service Registry Component ABBs of the EIRA Technical Infrastructure View. The specification is included within catalogues of standards at national level and EU level. However, there is no evidence of any cross-border project that uses LDAP.

- **Integrated public service governance & Legal Interoperability**

After being evaluated compliant with the regulation on standardisation 1025/2012, LDAP has been identified by Commission Implementing Decision. During the evaluation process, all the Member States are invited to share their doubts. The positive evaluation of LDAP and its identification is considered an interoperability agreement.

- **Organisational interoperability**

LDAP is not a business process modelling standard or specification and does not define organisational interoperability aspect. The purpose of the specification is not related to organisational Interoperability.

- **Semantic Interoperability**

LDAP defines a schema for authentication that can be used in a cross-domain manner, however, it is not defining a reusable data model.

- **Technical interoperability**

LDAP is an open specification available to everyone for study or use.

⁵<https://docs.microsoft.com/en-us/previous-versions/windows/desktop/ldap/differences-between-ldap-2-and-ldap-3>

3. ASSESSMENT RESULTS

This section presents an overview of the results of the CAMSS assessments for **Lightweight Directory Access Protocol (LDAP)**. 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 are used to calculate the “Automated Score” per category and an “Overall Score”.

Category	Automated Score	Assessment Strength	# Favourable	# Unfavourable	# Not Applicable
Principle setting the context for EU actions on interoperability	100%	100%	1	0	0
Core interoperability principles	100%	79%	15	0	4
Principles related to generic user needs and expectations	100%	50%	2	0	2
Foundation principles for cooperation among public administrations	100%	67%	2	0	1
Interoperability layers*	83%	82%	15	3	4
Overall Score	90%	74%	26	3	10

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

With a 74% of assessment strength, this assessment can be considered representative of the specification compliance with the EIF principles and recommendations.

The Overall Automated Score of 90% demonstrates that the specification fully supports the European Interoperability Framework in the domains where it applies.

INTEROPERABILITY PRINCIPLES

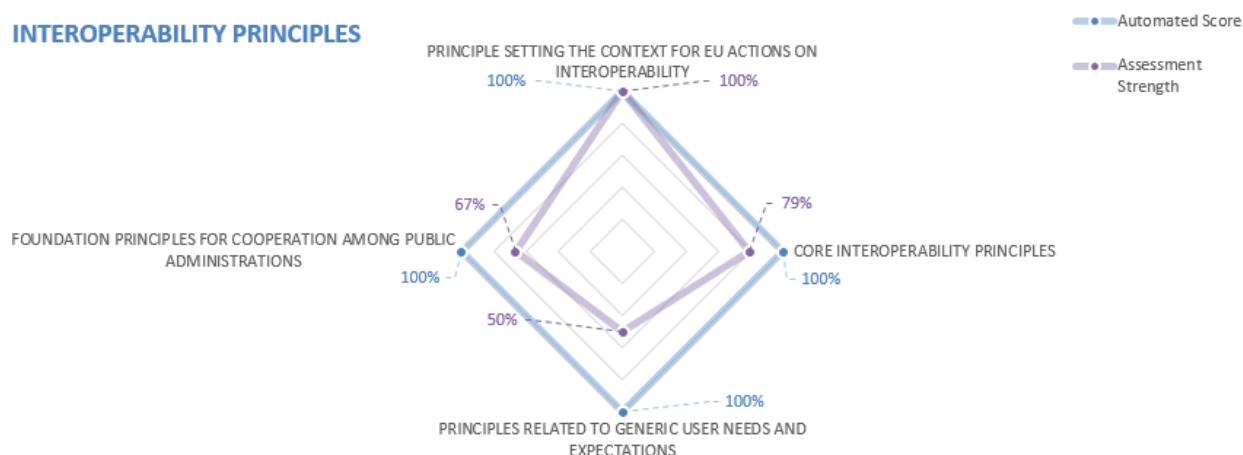


Figure 1. Interoperability principles Results

INTEROPERABILITY LAYERS

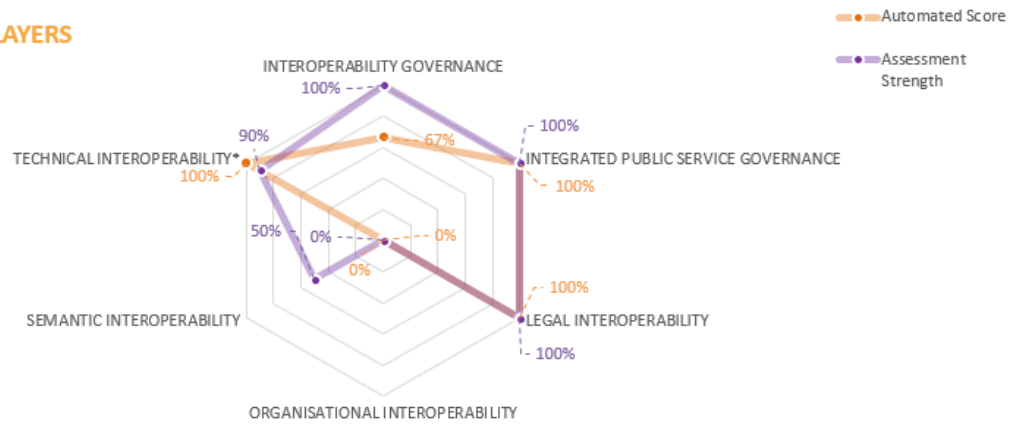


Figure 2. Interoperability layers Results