
Aeronavtika - LOTAR - Dolgoročno arhiviranje in iskanje digitalne tehnične dokumentacije o izdelkih, kot so podatki o 3D, CAD in PDM - 21. del: Metapodatki za arhivske pakete

Aerospace series - LOTAR - Long Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data - Part 021: Metadata for archival packages

Luft- und Raumfahrt - LOTAR - Langzeit-Archivierung und -Bereitstellung digitaler technischer Produktdokumentationen, wie zum Beispiel von 3D-, CAD- und PDM-Daten - Teil 021: Metadaten für Archivpakete

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Ta slovenski standard je istoveten z: prEN 9300-021

ICS:

01.110	Tehnična dokumentacija za izdelke	Technical product documentation
35.240.30	Uporabniške rešitve IT v informatiki, dokumentiranju in založništvu	IT applications in information, documentation and publishing
49.020	Letala in vesoljska vozila na splošno	Aircraft and space vehicles in general

oSIST prEN 9300-021:2026

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NORME EUROPÉENNE
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DRAFT
prEN 9300-021

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ICS 01.110

English Version

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Retrieval of digital technical product documentation such
as 3D, CAD and PDM data - Part 021: Metadata for archival
packages**

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und -Bereitstellung digitaler technischer
Produktdokumentationen, wie zum Beispiel von 3D-,
CAD- und PDM-Daten - Teil 021: Metadaten für
Archivpakete

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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European foreword

This document (prEN 9300-021:2026) has been prepared by ASD-STAN.

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

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Introduction

This document was prepared jointly by AIA, ASD-STAN, PDES, Inc., and the prostep ivip association.

The prostep ivip association is an international non-profit association in Europe. For establishing leadership in IT-based engineering it offers a moderated platform to its nearly 200 members from leading industries, system vendors and research institutions. Its product and process data standardization activities at European and worldwide levels are well known and accepted. The prostep ivip association sees this document and the related parts as a milestone of product data technology.

PDES Inc. is an international non-profit association in the USA. The mission of PDES Inc. is to accelerate the development and implementation of ISO 10303, enabling enterprise integration and PLM interoperability for member companies. PDES Inc. gathers members from leading manufacturers, national government agencies, PLM vendors and research organizations. PDES Inc. supports this document as an industry resource to sustain the interoperability of digital product information, ensuring and maintaining authentic longevity throughout their product lifecycle.

The standards will be published under two different standards organizations using different prefixes. ASD-STAN will publish the standard under the European Standard (EN) number EN 9300-021. AIA will publish the standard under the National Aerospace Standard (NAS) number NAS 9300-021. The content in the EN 9300 and NAS9300 documents will be the same. The differences will be noted in the reference documentation (For example, EN 9300 Geometric Dimensioning and Tolerancing will be referenced in ISO 1101 and ISO 16792, and for NAS 9300 the same information will be referenced in ASME Y14.5 and ASME Y 14.41). The document formatting, etc., will follow that of the respective editorial rules of ASD-STAN and AIA.

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1 Scope

This document specifies requirements for metadata of archive packages intended for the long-term archiving of digital product information.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 9300-005:2017, *Aerospace series — LOTAR — LOnG Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data — Part 005: Authentication and Verification*

EN 9300-007, *Aerospace series — LOTAR — LOnG Term Archiving and Retrieval of digital technical product documentation such as 3D, CAD and PDM data — Part 007: Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 9300-007 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

agent

actor, person, organization, or software program/system associated with events in the life of a data object, or with rights attached to a data object

Note 1 to entry: The Dublin Core Terms (DCMI) defines an agent as ‘a resource that acts or has the power to act.’

3.2

information package

logical container composed of optional information objects

Note 1 to entry: Associated with this information package is packaging information used to delimit and identify the information object and optional package description information used to facilitate searches for the information object (OAIS).

3.3

right

assertion of one or more rights (such as access rights) or permissions pertaining to a data object and/or agent

4 Principle

Since technical product documentation, such as design documents, are generated, exchanged, and used digitally, it is essential to adapt architecture, technology, processes, data formats and rules to enable digital retention and long-term archiving.

5 Background

5.1 Long-term archiving and retrieval (LOTAR)

Many companies are migrating their design processes from using traditional hard-copy drawings and documents to using digital data. New processes are also essential to archive digital data and preserve access to it in compliance with business and other requirements appropriate to this new media. Some industries are required to archive data for the life of a product which can exceed 50 years. Over these time periods, changes in technology impact the ability to retrieve and use product data. Organizations which use digital product data require strategies and processes that maintain the usability of the data over multiple generations of technology.

The cost of certain technologies varies over time. As technology ages, the cost of implementation, use, and maintenance of that technology can provide economic pressure to move to a more current technology. Newer technology generally provides additional business benefits, which are not reflected in a cost and benefits comparison. At some point, regardless of cost, it can become impractical or even impossible to use or maintain older technology due to lack of materials, equipment, tools, and support for the technology.

Business requirements dictate the archiving of product data for long periods of time. It is generally not feasible to maintain a single generation of technology over a period of 50 plus years. Over these time periods, changes in technology impact the ability to retrieve, reproduce and use product data. Organizations which use digital product data require strategies and processes that maintain the reproducibility and usability of the data over multiple generations of technology. The retention periods of digital data are broken into three categories as managed under a master records retention plan (see also Figure 1):

- a) Short term — 0 > 5 years. This includes data that have a short life cycle and has a small impact on data systems used to manage this data.
- b) Medium term — 6 > 10 years. This time-period includes data that have a medium life cycle and there is minimum impact on the systems used to maintain the data (e.g. S/W service pack updates).
- c) Long term — > 10 years. This time-period includes data that have a life cycle that exceeds ten years and includes a major impact on the systems used to maintain the data (e.g. S/W version upgrades -- Catia V4 - V5; PDM V1 - V2).

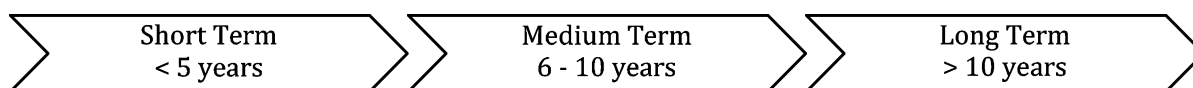


Figure 1 — Data retention periods

Development of new aerospace and defence projects increasingly demands the use of digital product information for in-service support reasons, by the supply chain, and from the customers. The requirements described within this document are applicable for the full aerospace product lifecycle.

This document sums up the main business requirements for long term archiving of digital product data. In some cases, the authentic preservation of design type information is requested, which is described in other parts of the EN 9300 series.

NOTE See also EN 9300-003.

This document describes requirements for standardized metadata for information packages and/or archives that ensures that product data are retrievable, reproducible, and usable for the required

retention period. The metadata requirements are described in terms of the open archival information system (OAIS) reference model (ISO 14721) that provides a conceptual framework for archive systems.

5.2 Open archival information system reference model (OAIS)

5.2.1 OAIS and LOTAR

The LOTAR standards are developed from the open archival information system (OAIS) reference model (see ISO 14721), which provides a conceptual framework for archive systems. Using the OAIS reference model and the LOTAR basic and common parts (see EN 9300-001, EN 9300-002, EN 9300-003, EN 9300-005, EN 9300-007, etc.) as a process guideline, this document establishes a minimum set of metadata for the archive in support of business and other requirements for long-term archiving of digital product data. This document establishes the metadata requirements common to all domains and establishes the framework for common appendices in the specific parts of the EN 9300 series (–1xx, –2xx, etc.).

An information package is a logical container composed of optional information object(s). Associated with this information package is packaging information that describes how the components of an information package are logically or physically bound together and how to identify and extract the components (OAIS). Neither OAIS nor LOTAR are prescriptive on implementation details for information packages in a long-term archive which can range from physical, self-contained to virtual and distributed. Within this document, metadata for archive packages requirements have been written to reflect this range of implementation choices and where information packages (information packages), archival information packages (AIPs), submission information packages (SIPs) and dissemination packages (DIPs) are mentioned it is done so in the context of this range of implementation options.

In addition to the content information, OAIS defines three main classes of information (metadata) that should be held in an archive, related to content data (OAIS):

- preservation description information (PDI) — to support the trust in, the access to and context of the content;
- packaging information (PI) — to either actually or logically, bind or relate the components into an identifiable entity on specific media;
- descriptive information (DI) — to provide adequate features to allow consumers to locate information of potential interest, analyse that information, and request desired information.

The following definitions for the three main classes of metadata are taken from the OAIS reference model and a detailed view of the structure of an archival information package is shown in Figure 2.

5.2.2 Preservation description information (OAIS)

The PDI shall include information that is necessary to adequately preserve the particular content information with which it is associated. It is specifically focused on describing the past and present states of the content information, ensuring it is uniquely identifiable, and ensuring it has not been unknowingly altered.

The following definitions are based on the categories described in OAIS.

- **Reference information** identifies, and if necessary, describes, one or more mechanisms used to provide assigned identifiers for the content information. It also provides those identifiers that allow outside systems to refer, unambiguously, to this particular content information. Examples of these systems include taxonomic systems, reference systems and registration systems. In the OAIS Reference model most if not all this information is replicated in package descriptions, which enable consumers to access content information of interest.