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- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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Full document details: 24/30488984 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Aerospace series - LOTAR - LOng Term Archiving and
Retrieval of digital technical product documentation such
as 3D, CAD and PDM data - Part 003: Fundamentals and
concepts

Série aérospatiale - LOTAR - Archivage long terme et
récupération des données techniques produits
numériques telles que CAO, 3D et PDM - Partie 003 :
Fondamentaux et concepts

Luft- und Raumfahrt - LOTAR - Langzeit-Archivierung
und -Bereitstellung digitaler technischer
Produktdokumentationen, wie zum Beispiel von 3D-,
CAD- und PDM-Daten - Teil 003: Grundlagen und
Konzepte

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

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 9300-003:2024) has been prepared jointly by AIA, ASD-STAN, PDES, Inc., AFNeT and the prostep ivip Association.

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.

This document will supersede EN 9300-003:2012.

prEN 9300-003:2024 includes the following significant technical changes with respect to EN 9300-003:2012:

—

Introduction

The AFNeT association is an international non-profit association in Europe and has operated for more than 30 years as a multi-sectoral “Think Tank” articulated with a “Do Tank”, with digital transformation projects or standardization projects in many industries. These activities have led to the emergence of a network of recognized and highly skilled actors from the manufacturing industry, IT businesses, and research companies. Its members represent leading industrial companies, SMEs, French governmental agencies, software vendors, universities, and research organizations. AFNeT has conducted voluntary and innovative actions in order to develop competitiveness and innovation in industry by setting up collaboration projects or programs in the industrial sectors (e.g. Aerospace and Defence, Automotive, Rail, Shipbuilding, Nuclear, Energy) to enable the digital thread for the extended enterprise processes such as Product Lifecycle Management, Supply-Chain Management, Manufacturing, Maintenance and Operations, Integrated Logistics Support, and Identification. AFNeT promotes the development, testing and usage of a set of coherent international standards for supporting these activities, especially in the PLM and the SCM domains.

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 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 standard as an industry resource to sustain the interoperability of digital product information, ensuring and maintaining authentic longevity throughout their product lifecycle.

Readers of this document should note that all standards undergo periodic revisions and that any reference made herein to any other standard implies its latest edition, unless otherwise stated.

Within the context of the EN 9300 series the terms “shall” and “should” are to be used per the TOC-2 NAS Style Guide_2021 Clause 3.1 and 3.2:

- “shall” is to be used in an imperative sense. All requirements will be prefaced with a “shall” statement denoting mandatory compliance;
- “should” is to be used to indicate a recommendation. All non-mandatory requirements or statements will be prefaced with a “should” statement denoting non-mandatory action.
- “includes” means “includes but is not limited to”.

1 Scope

This document specifies the fundamentals and concepts for the long-term preservation of digital product and technical data. EN 9300 is a series of separate standard parts that elucidate various regulatory and business requirements, applicable domain specific methodologies and are extensible for future long-term archiving formats and data management practices.

EN 9300-003 will focus on the fundamentals and concepts of long-term archival and retrieval of digital product and technical data.

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 9300-007,¹ *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 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/>

4 Applicability

EN 9300 is a series of standards for long-term archiving and retrieval of model-based product data.

Since technical product documentation, such as design documents, are generated, exchanged, and used digitally, architecture, technology, processes, data formats, rules and regulations need to be adapted to enable digital retention and long-term archiving. The EN 9300 series closes this gap as a standard for long-term archival and retrieval of model-based product data.

For further explanation on applicability of this document and its series, see FprEN 9300-001.

5 Fundamentals for Long-Term Archiving and Retrieval (LOTAR)

5.1 General

This clause discusses the fundamentals and concepts applicable to the long-term archiving and retrieval of digital product and technical data domain. It provides detailed clarification of these concepts into a context beyond basic definitions defined in EN 9300-007.

Various user communities such as aerospace and defence, automotive or shipbuilding demonstrate specific needs for long-term archiving and retrieval of their product and technical data. This is noted in their diverse retention and archival requirements as well as various data management processes. This clause explains the major differences of the terms “retention” and “archival” and their relation to the scope of EN 9300. See Figure 1.

¹ Published as ASD-STAN Standard at the date of publication of this document, available at: <https://www.asd-stan.org/>.

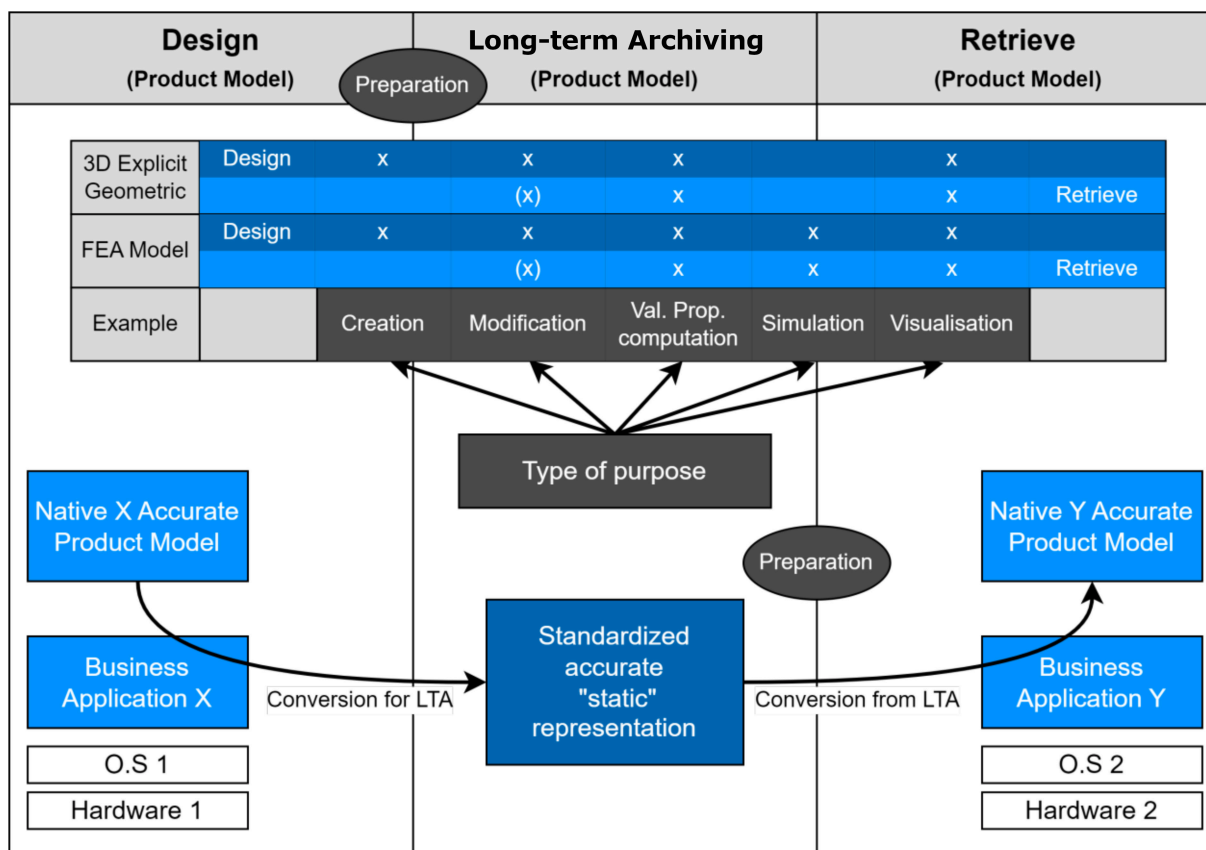


Figure 1 — Archival — Storage and retention

Companies within various industries need to keep data and records to fulfil, certification, legal and business requirements. For most modern applications, this data is digital. These requirements fall under four main categories regarding the retention of digital data:

- invariance:** how important is it to ensure that digital data is not altered;
- requirements:** why and for which cases preservation of digital data is required or not;
- retention period:** the required length of time for retaining digital data;
- stored form:** the stored format of the digital data.

The following subclauses describe these four categories and are the foundation for this document.

5.2 Invariance

5.2.1 General

Invariance covers the need to ensure that the information has not changed over time and thus provide evidential weight that the design intent has not changed.

Three sub-categories further clarify invariance:

- **auditable** – where validation methods and test suites ensure that information cannot be changed without the change being detected, e.g. by the comparison of stored secure hash algorithm (SHA) checksums of the record before and after archiving – (refer to EN 9300-005 “Authentication and Verification”, ISO 16363);
- **implicit** – where the system is designed to prevent changes. The system shall supervise activities which would result in changes of the digital data. The supervision, for example, could be realized

within a separate write-protected vault; e.g. Write-Once, Read-Many (WORM). The proof of “no change” is shown by an absence of change having been recorded and by showing that the system itself is reliable;

— **not required** – where changes to data are not explicitly controlled.

Of the three, auditable invariance is the strongest, and is likely to be the most suitable where the information is used in legal proceedings.

For long-term archiving and retrieval, invariance is mandatory to meet business, certification, and legal requirements.

5.2.2 Requirements for preserving digital data

For digital data, the challenge is that the data are often stored in a proprietary, native format and will most likely become non-interpretable after a certain amount of time. The use of a neutral archiving data format safeguards the interpretability of the stored data for a much longer time, perhaps for the entire retention period. EN 9300 recommends the use of standard formats for long-term archiving rather than native formats, accompanied by regular and frequent migrations of storage media and, if necessary, of data format. The use of secure archiving and retrieval processes ensures the data readability and integrity within current and future systems. This includes the use of Secure Hash Algorithms (SHA) to ensure that archived data have not been altered over time. Such algorithms may need to be renewed over time with a standardized procedure, when cryptographic technologies used become unsecure (e.g. SHA1 replacement by SHA2). The main requirement is that the engineering or design intent is preserved not necessarily the ones (1) and zeros (0).

5.2.3 Retention period for storing digital data

The life cycle of software and hardware is relatively short compared to the life cycle of aerospace and shipbuilding. The life cycle of digital data can be described in terms of software versions and generations. The release of a new software version within a generation in general alters only a small part of the functionalities of the software without affecting the data format or data model. A generation change occurs when the software used changes substantially, for example, to a new architecture and data model. The change of a generation may result even in completely new data formats or eventually drop of support of older data formats.

Currently, for CAD software, the period between versions is of the order of 6 months to 12 months, while between generations is of the order of 4 years to 7 years. This should be compared to an aircraft or ship life cycle which includes the life of individual product or program.

This leads to the following definitions:

short-term	within one or two versions	0–5 years;
medium-term	within one generation	6–10 years;
long-term	over multiple generations	11+ years.

5.3 The product life cycle

The following excerpts from ISO/IEC/IEEE 15288 assist in providing a working understanding of life cycle phases for the purpose of this document.

— Life cycle model: a framework of processes and activities concerned with the product life cycle that is organized into stages. The life cycle models consider both the business and the technical needs of all stakeholders. The stages are organized to provide a common reference for communication and understanding.