

Dentistry - Interoperability of CAD/CAM systems (ISO
18618:2018)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 18618:2018 sisaldab Euroopa standardi EN ISO 18618:2018 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 18618:2018 consists of the English text of the European standard EN ISO 18618:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 27.06.2018.	Date of Availability of the European standard is 27.06.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 11.060.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Dentistry - Interoperability of CAD/CAM systems (ISO
18618:2018)

Médecine bucco-dentaire - Interopérabilité des
systèmes de CFAO (ISO 18618:2018)

Zahnheilkunde - Interoperabilität der CAD/CAM-
Systeme (ISO 18618:2018)

This European Standard was approved by CEN on 3 May 2018.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 18618:2018) has been prepared by Technical Committee ISO/TC 106 “Dentistry” in collaboration with Technical Committee CEN/TC 55 “Dentistry” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2018, and conflicting national standards shall be withdrawn at the latest by December 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 18618:2018 has been approved by CEN as EN ISO 18618:2018 without any modification.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Data security and storage methods	5
5 Naming	5
6 Tooth numbering system	5
7 Measurement units	5
8 Additional restrictions on IDS XML documents	6
9 XSD Description	6
Annex A (normative) XML Schema for IDS	7
Annex B (informative) Examples	53
Bibliography	64

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 9, *CAD/CAM Systems*.

Introduction

Manufacturers of dental CAD/CAM systems differ in how they exchange manufacturing information and three dimensional data. This causes difficulty in data processing, design processes, and manufacturing processes for users of those systems. In order to overcome these interoperability issues, this document has been prepared to facilitate open interoperability between CAD/CAM systems in dentistry.

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent.

ISO takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ISO that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO.

This document is based on the open source Universal Dental Exchange (UDX) standard created by the Open Exchange Dental Interoperability Group (OXDIG). The UDX specification is licensed under the Open Software License version 3.0. Users who wish to implement this document must obtain an open source license agreement from the licensor. The licensor will grant a worldwide, royalty-free, non-exclusive, sublicensable license upon request.

The licensor may be contacted at:

OXDIG LLC

4141 MacArthur Boulevard

Newport Beach, CA 92660 USA

Web: <http://www.oxdig.org>

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO shall not be held responsible for identifying any or all such patent rights.

Dentistry — Interoperability of CAD/CAM systems

1 Scope

This document specifies an extensible markup language (XML) format to facilitate the transfer of dental case data and CAD/CAM data between software systems.

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.

ISO 1942, *Dentistry — Vocabulary*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 3950, *Dentistry — Designation system for teeth and areas of the oral cavity*

ISO 16443, *Dentistry — Vocabulary for dental implants systems and related procedure*

ISO 18739, *Dentistry — Vocabulary of process chain for CAD/CAM systems*

ISO 19429:2015, *Dentistry — Designation system for dental implants' after 'ISO 18739, Dentistry — Vocabulary of process chain for CAD/CAM systems'*

W3C — Extensible Markup Language (XML) 1.0 (Fifth Edition), November 2008

W3C XML Schema Definition Language (XSD) 1.1, 2012

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942, ISO 16443, ISO 18739, W3C XML1.0, W3C XSD 1.1 and the following apply.

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

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

NOTE 1 Throughout the IDS (interface for dental CAD/CAM systems) schema there are terms that have special meaning or definition. Understanding the use of these terms is the key to well-defined IDS documents that all parties can understand universally.

NOTE 2 The IDS schema defines several peer level nodes immediately within the enveloping root <IDS> element that organizes the IDS document into structures for specific transactions. They represent a submission, a query, an update of a previous submission, a notification of an event or status change and a series of catalogs. A single IDS document can contain a combination of different transaction nodes or consist of only a single transactional node.

NOTE 3 In addition to the transactional nodes mentioned above, the IDS schema also defines several nodes that provide traceability and source identification features as well as provide information on how to reply to a document transaction.

3.1 General terms