TECHNICAL REPORT

ISO/TR 22299

First edition
2018-11

Document management — Digital file format recommendations for long-term storage

Gestion électronique — Recommandations de format de fichier numérique pour le stockage à long terme

Reference number
ISO/TR 22299:2018(E)

© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Basic selection criteria according to the content type description **1**
4.1 General 1
4.2 Selection methodology 2
4.2.1 File format description 2
4.2.2 Long-term availability of readers or players 2
4.2.3 File presentation stability 3
4.2.4 Software and/or operating system migrations 3
4.2.5 File format selection 3
5 File formats **4**
5.1 General 4
5.2 Coded text 4
5.3 Vector graphics 4
5.3.1 2D graphics 4
5.3.2 3D graphics 4
5.3.3 Technical drawings 5
5.4 Images 5
5.5 Sound 5
5.5.1 Linear formats for sound files 5
5.5.2 Lossless compression formats 6
5.5.3 Lossy compression formats 6
5.5.4 Container formats 6
5.6 Video 6
5.6.1 General 6
5.6.2 Coding 7
5.6.3 Digitalization 7
5.6.4 Compression 7
5.6.5 Video container formats 8
5.7 Office automation 8
5.8 Formats suitable for preservation 8
Bibliography **10**

© ISO 2018 – All rights reserved

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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Document file formats, EDMS systems and authenticity of information.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2018 – All rights reserved

Introduction

The document management industry is heavily reliant on standardized file formats for both long-term storage and interoperability purposes.

Effective document management often requires the selection of an appropriate storage file format and eventually conversion between the native digital document format and the selected storage file format.

This document provides information and guidelines on file formats to assist in the selection of file formats.

© ISO 2018 – All rights reserved

Document management — Digital file format recommendations for long-term storage

1 Scope

This document gives guidelines for selecting the most appropriate file format(s) for the storage, usability, and exchange of data with a long-term management objective.

It is applicable to the selection of file formats to be used to store electronic documents. It provides guidance that takes into account:

— the durability of documents in a readable form;

— fidelity to the original and data integrity;

— interoperability, i.e. independence from creation applications, information systems and rendition platforms;

— compliance with relevant laws and regulations;

— compliance with format specifications;

— reducing costs by reducing the number of conversions/migrations over time.

This document is applicable to all office activities (e.g. text processing, spreadsheets, presentations), email and static web pages, as well as all types of electronic components, including images, video and sound.

It does not apply to database formats.

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 12651-1, *Electronic document management — Vocabulary — Part 1: Electronic document imaging*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12651-1 apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Basic selection criteria according to the content type description

4.1 General

The following criteria can be considered when selecting a file format:

— the file format functionality, i.e. the type of content it is able to support (e.g. text only, enhanced text with images or style sheets, images, video, sound);

© ISO 2018 – All rights reserved