
**Information technology — Document
Container File —**

**Part 1:
Core**

Technologies de l'information — Fichier conteneur de document —

Partie 1: Données de base

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ISO/IEC 21320-1:2015

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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 document 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 and IEC 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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](http://Foreword-Supplementary information).

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 34, *Document description and processing languages*.

ISO/IEC 21320 consists of the following parts, under the general title *Information technology — Document Container File*:

— *Part 1: Core*

Introduction

It is often useful to combine multiple digital resources into a single digital resource to make them easier to store and process. The combined digital resource may also use data compression to minimize the space needed for storage.

This part of ISO/IEC 21320 specifies a format for this purpose. The format is a compatible profile of that defined by the Zip Application Note of PKWARE® Inc.

The use of Zip-based archive files for digital documents is increasingly common. Within ISO/IEC JTC 1, there are the examples of ISO/IEC 26300 series and ISO/IEC 29500. Outside of the International Standardization system, there are similar uses such as those of the EPUB Open Container Format (from the IDPF) and Widget Packaging and XML Configuration (from the W3C).

The technology defined by the Zip Application Note has been in wide use in ICT industries for over twenty years, and the specification has been freely available for much of that time. However, it has never been formally standardized and this lack of standardization presents several challenges to standards (including ISO/IEC Standards) that wish to reference it, including the following:

- stability of reference: what is the correct reference to give for the Zip Application Note and how can it be ensured that this reference remains available?;
- intellectual property rights: what, if any, patents are necessary to implement this technology, and is there a subset that may be freely implemented?;
- cultural and linguistic adaptability: is the Zip Application Note sufficient by itself, or is additional expository material needed to define best practices for global use, e.g. the use of IRIs for file names?;
- interoperability within domain: is there a technology subset that will provide greater interoperability within the domain of Document Container Files than permitting all features of the Zip Application Note?

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Information technology — Document Container File —

Part 1: Core

1 Scope

This part of ISO/IEC 21320 specifies the core requirements for

- document container files, and
- implementations that produce and/or consume document container files.

This part of ISO/IEC 21320 normatively references the Zip File Format Specification version 6.3.3 of PKWARE® Inc. Document container files are conforming Zip files as specified by that document.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE Each of the following documents has a unique identifier that is used to cite the document in the text. The unique identifier consists of the part of the reference up to the first comma.

ISO/IEC 10646:2014, *Information technology — Universal Coded Character Set (UCS)*

Appnote,¹⁾ APPNOTE.TXT — ZIP File Format Specification, PKWARE® Inc., September 2012

IETF RFC 1951,²⁾ DEFLATE Compressed Data Format Specification version 1.3, May 1996

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

byte

sequence of 8 bits

3.2

digital resource

sequence of *bytes* (3.1)

3.3

document container file

digital resource that conforms to this part of ISO/IEC 21320

3.4

implementation

processor that operates on *document container files* (3.3)

1) Available at <http://www.pkware.com/documents/APPNOTE/APPNOTE-6.3.3.TXT>

2) Available at <http://www.ietf.org/rfc/rfc1951.txt>

4 Requirements

A digital resource is conformant to this part of ISO/IEC 21320 when it is in accord with the provisions of this part of ISO/IEC 21320. Such a digital resource is a document container file.

An implementation is conformant to this part of ISO/IEC 21320 when it processes conformant digital resources in accord with the provisions of this part of ISO/IEC 21320.

5 Profile of Appnote

5.1 General

The provisions of this part of ISO/IEC 21320 are the provisions of Appnote as modified by the annotations provided in [Table 1](#).

The provisions of Appnote shall be determined by interpreting Appnote in its own terms, and according to its own context.

EXAMPLE Appnote's Clause 3 has its own "Notations" which differ from those used by ISO and IEC. Appnote's own notations apply for the purposes of its interpretation. So, for instance, "must" in the Appnote is to be read as equivalent to "shall" in ISO and IEC Standards.

5.2 Annotations to Appnote

[Table 1](#) is a two-column table which provides annotations to Appnote. The left-hand column of [Table 1](#) contains section numbers of Appnote, and text in parentheses, which together identify a portion of Appnote. The right-hand column of [Table 1](#) gives an annotation to the sections so identified. Each annotation applies to the corresponding identified section of Appnote.

NOTE The annotations to Appnote can have an effect beyond the section of the Appnote to which they explicitly apply. For example, if a specific technical feature is prohibited by an annotation, no other mention of that feature can be interpreted as re-admitting that feature to this part of ISO/IEC 21320.

Table 1 — Annotations to Appnote

Appnote section	Annotation
4.3.3 (general Format of a Zip file)	Resources conforming to this part of ISO/IEC 21320 shall not span multiple volumes, and shall not be split into user-defined segment sizes.
4.3.6 (overall Zip file format)	Resources conforming to this part of ISO/IEC 21320 shall not contain either "encryption header" or "archive decryption header" constructs.
4.3.8 (file data)	Files contained in archives shall not be encrypted using the mechanisms described in Appnote.
4.3.9.6 (data descriptor)	The "central directory encryption method" mentioned by this sub-clause of Appnote shall not be used.
<p>NOTE 1 Although the above provision for Appnote,4.4.3 permits values for "version needed to extract" which imply support for features of value 1.1 ("File is a volume label"), 2.0 ("File is a folder [...] etc.), 2.1 ("File is compressed using Deflate64™"), 2.5 ("File is compressed using PKWARE DCL Implode") and 2.7 ("File is a patch data set"), none of these features are permitted by this part of ISO/IEC 21320.</p> <p>NOTE 2 To promote global use, implementers are strongly encouraged to support bit 11 of the "general purpose bit flag" (Appnote, 4.4.4) being set.</p> <p>NOTE 3 For file names, any Unicode character is allowed. However, different file systems impose different restrictions on permissible characters, and RFC 3987 introduces its own restrictions. As a result, it might not be possible to create a file name or IRI from a zip item name.</p> <p>NOTE 4 Some file systems perform Unicode normalization or case normalization of file names while others do not. Thus, multiple different zip item names in a single Zip archive may become identical after normalization.</p>	

Table 1 (continued)

Appnote section	Annotation
4.3.10 (archive decryption header)	The “archive decryption header” feature specified by this subclause of Appnote shall not be used.
4.3.13 (digital signature)	The “digital signature” feature specified by this subclause of Appnote shall not be used.
4.4.1.5 (explanation of fields)	Archives shall not be split or spanned.
4.4.3 (version needed to extract)	Resources conforming to this part of ISO/IEC 21320 shall not contain a “version needed to extract” value greater than 45. The ZIP64™ extension feature version 1 may be used. The ZIP64™ extension feature version 2 shall not be used.
4.4.4 (general purpose bit flag)	Bit 0, bits 4 to 10 and 12 to 15, shall not be set. Bit 11 should be set. If the value of any byte in the file name or file comment is greater than 0x7F, bit 11 shall be set. If bit 11 is set, the file names and comment fields for the document container file shall be Unicode strings encoded using the UTF-8 encoding scheme as specified in ISO/IEC 10646:2014, Annex D.
4.4.5 (compression method)	The compression method shall be either 0 (“stored”) or 8 (“deflated”).
4.7 (manifest files)	This clause of Appnote shall be disregarded.
5.5 (deflating)	Files compressed using this method shall use the mechanisms specified in IETF RFC 1951.
6.0 (traditional PKWARE encryption)	This clause of Appnote shall be disregarded.
7.0 (strong encryption specification)	This clause of Appnote shall be disregarded.
8.0 (splitting and spanning Zip files)	This clause of Appnote shall be disregarded.
<p>NOTE 1 Although the above provision for Appnote 4.4.3 permits values for “version needed to extract” which imply support for features of value 1.1 (“File is a volume label”), 2.0 (“File is a folder [...]” etc.), 2.1 (“File is compressed using Deflate64™”), 2.5 (“File is compressed using PKWARE DCL Implode”) and 2.7 (“File is a patch data set”), none of these features are permitted by this part of ISO/IEC 21320.</p> <p>NOTE 2 To promote global use, implementers are strongly encouraged to support bit 11 of the “general purpose bit flag” (Appnote, 4.4.4) being set.</p> <p>NOTE 3 For file names, any Unicode character is allowed. However, different file systems impose different restrictions on permissible characters, and RFC 3987 introduces its own restrictions. As a result, it might not be possible to create a file name or IRI from a zip item name.</p> <p>NOTE 4 Some file systems perform Unicode normalization or case normalization of file names while others do not. Thus, multiple different zip item names in a single Zip archive may become identical after normalization.</p>	