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**Information technology — Computer
graphics — Metafile for the storage and
transfer of picture description
information —**

**Part 4:
Clear text encoding**

*Technologies de l'information — Infographie — Métafichier de stockage
et de transfert des informations de description d'images —*

Partie 4: Codage en clair des textes

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 8632 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 8632-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 24, *Computer graphics and image processing*.

This second edition cancels and replaces the first edition (ISO/IEC 8632-4:1992), which has been technically revised. Note that the previous edition of ISO/IEC 8632-4, published in 1992, was a first edition but second edition was indicated by error on its cover page and in the foreword.

ISO/IEC 8632 consists of the following parts, under the general title *Information technology — Computer graphics — Metafile for the storage and transfer of picture description information*:

- *Part 1: Functional specification*
- *Part 3: Binary encoding*
- *Part 4: Clear text encoding*

Annex A forms a normative part of this part of ISO/IEC 8632. Annex B is for information only.

NOTE In previous editions of ISO/IEC 8632, Part 2 defined a Character Encoding. Part 2 was withdrawn in 1998, due to its lack of implementation and use.

Introduction

0.1 Purpose of the clear text encoding

The Clear Text Encoding of the Computer Graphics Metafile (CGM) provides a representation of the Metafile syntax that is easy to type, edit and read. It allows a metafile to be edited with any standard text editor, using the internal character code of the host computer system.

0.2 Primary objectives

- a) Human editable: The Clear Text Encoding should be able to be hand edited or, if desired, hand constructed.
- b) Human friendly: The Clear Text Encoding should be easy and natural for people to read and edit. Although what is easiest and most natural is a subjective judgment that varies among users, contributing factors such as ease of recognition, ease of remembering, avoidance of ambiguity, and prevention of mistyping have all been considered.
- c) Machine readable: The Clear Text Encoding should be able to be parsed by software.
- d) Suitable for use in a wide variety of editors: The Clear Text Encoding should not have any features that make it difficult to edit in normal text editors.
- e) Facilitate interchange between diverse systems: The Clear Text Encoding should be encoded in such a way as to maximize the set of systems which can utilize it. No assumptions should be made as to word size or arithmetic modes used to interpret the metafile.
- f) Use standardized abbreviations as much as possible: Where language encoding of other graphics standards have established standard abbreviations, or where common practice in the data processing and graphics industries has established well known abbreviations, these abbreviations are used. In accordance with the principle of "least astonishment", this approach should minimize the time needed to learn to use this encoding.

0.3 Secondary objectives

Because the other CGM encoding (the CGM Binary Encoding) is targeted toward CPU efficiency and information density, these objectives are considered of secondary importance for the CGM Clear Text Encoding.

0.4 Relationship to other International Standards

The set of characters required to implement the Clear Text Encoding is a subset of those included in national versions of ISO/IEC 646. Any character set that can be mapped to and from that subset may be used to implement the encoding.

For certain elements, the CGM defines value ranges as being reserved for registration. The values and their meanings will be defined using the established procedures (see ISO/IEC 8632-1, 6.12.)

Information technology — Computer graphics — Metafile for the storage and transfer of picture description information —

Part 4: Clear text encoding

1 Scope

This part of ISO/IEC 8632 specifies a clear text encoding of the Computer Graphics Metafile. For each of the elements specified in ISO/IEC 8632-1, a clear text encoding is specified. Allowed abbreviations are specified. The overall format of the metafile and the means by which comments may be interspersed in the metafile is specified.

This encoding of the CGM allows metafiles to be created and maintained in a form which is simple to type, easy to edit and convenient to read.

2 Conformance

Conformance of metafiles to ISO/IEC 8632 is defined in terms of profiles. A metafile conforms to this encoding if it conforms to a profile and meets the following criteria:

- Each metafile element described in this part shall be encoded in the manner described in this part of this International Standard and a profile.
- Metafile elements which are not defined in Part 1 or in this encoding are all encoded using the GENERALIZED DRAWING PRIMITIVE or ESCAPE metafile elements as appropriate. According to the profile rules of Part 1 (see clause 9, subclause 9.5.2.8), such elements shall either be profile defined or registered, in order that the profile be valid. Inclusion of private elements is not permissible in a valid profile of ISO/IEC 8632 and this encoding.
- Values of index parameters, which are used as enumeration selectors from lists of implicitly defined attribute values, shall either be standard, registered, or profile defined. The standard and registered values are all non-negative, and the profile-defined shall be negative. Use of private, implicitly-defined negative index values which are not profile defined is not permissible in a valid profile of ISO/IEC 8632 and this encoding.
- Values specified as being "reserved for registered values" shall not be used unless their meaning has been registered or standardized.
- All characters in the metafile shall be from the enumerated character repertoire (see 6.1), except for those within a parameters of type String and String Fixed, eligible parameters within specific data records, and format effectors as described in 6.1.
- Numbers shall be formatted as defined in 6.3.1 and 6.3.2.
- Inclusion of non-graphical data in the metafile shall be accomplished with the APPLICATION DATA element or with the APPLICATION STRUCTURE ATTRIBUTE element.

See clause 9 for additional conformance information about this encoding.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 8632. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 8632 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*.

ISO 2022:1986, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques*.