



SLOVENSKI STANDARD

SIST EN 28632-4:1997

01-december-1997

Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 4: Clear text encoding (ISO/IEC 8632-4:1992)

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

Informationstechnik - Graphische Datenverarbeitung - Datei für die Speicherung und die Übertragung von Bildinformation

Technologies de l'information - Infographie - Métafichier de stockage et de transfert des informations de description d'

PRESTANDARD PREVIEW
(standards.iteh.ai)
SIST EN 28632-4:1997
<http://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

Ta slovenski standard je istoveten z: EN 28632-4:1994

ICS:

35.140 Üæ ~ } æ} ã\ æ\ |æã æ Computer graphics

SIST EN 28632-4:1997 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 28632-4:1997

<https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

EUROPEAN STANDARD

EN 28632-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 1994

UDC 681.3.01:681.3.04(084)

Supersedes EN 28632-4:1992

Descriptors: Data processing, graphic data processing, information interchange, data handling, data transfer, data representation, data codes, files

English version

**Information technology - Computer graphics -
Metafile for the storage and transfer of picture
description information - Part 4: Clear text
encoding (ISO/IEC 8632-4:1992)**

Technologies de l'information - Infographie -
Métafichier de stockage et de transfert des
informations de description d'images - Partie
4: Codage en clair des textes (ISO/IEC
8632-4:1992)

Informationstechnik - Graphische
Datenverarbeitung Datei für die Speicherung und
Übertragung von Bildinformationen - Teil 4:
Klartextkodierung (ISO/IEC 8632-4:1992)



SIST EN 28632-4:1997

<https://standards.iteh.ai/> <https://standards.iteh.ai/en/standards/sist/EN/28632-4/1997-01-14/EN-28632-4-1992-91ab/>

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST.....EN 28632-4.....

PREVZET PO METODI RAZGLASITVE

-12- 1997

This European Standard was approved by CEN on 1994-01-14. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Page 2
EN 28632-4:1994

Foreword

On the proposal of the CEN Central Secretariat, the Technical Board decided to submit the International Standard:

"Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 4: Clear text encoding (ISO/IEC 8632-4:1992)"

to the formal vote.

The result of the formal vote was positive.

For the time being, this document exists only in English and French.

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 July 1994, and conflicting national standards shall be withdrawn at the latest by July 1994.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 28632-4:1997](https://standards.iteh.ai/standards/sist-en-28632-4-1997)

<https://standards.iteh.ai/standards/sist-en-28632-4-1997> Endorsement notice [iso-iec-8632-4-1992](https://standards.iteh.ai/standards/iso-iec-8632-4-1992) [id12-0800-4961-91ab-](https://standards.iteh.ai/standards/iso-iec-8632-4-1992)

[a03711a1feda/sist-en-28632-4-1997](https://standards.iteh.ai/standards/iso-iec-8632-4-1992)

The text of the International Standard ISO/IEC 8632-4:1992 was approved by CEN as a European Standard without any modification.



INTERNATIONAL
STANDARD

ISO/IEC
8632-4

Second edition
1992-10-01

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

**Part 4:
Clear text encoding
(standards.iteh.ai)**

*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
ISO/IEC 8632-4:1992(E)

CONTENTS

1	Scope	1
2	Normative references	2
3	Notational conventions	3
4	Entering and leaving the metafile environment	4
4.1	Generic clear text and instantiations	4
4.2	Implicitly entering the metafile environment	4
4.3	Designating and invoking the CGM coding environment from ISO 2022	4
5	Metafile format	5
5.1	Character repertoire	5
5.2	Separators	6
5.2.1	Element separators	6
5.2.2	Parameter separators	6
5.2.3	Comments in the metafile	7
5.3	Encoding of parameter types	7
5.3.1	Integer-bound types	7
5.3.2	Real-bound types	8
5.3.3	String-bound types	9
5.3.4	Enumerated types	10
5.3.5	Derived types	10
5.3.6	Bitstream datatype	11
5.3.7	Structured data record operands	11
5.4	Forming names	11
5.4.1	Words deleted	11
5.4.2	Words added	12
5.4.3	Words used unabbreviated	12
5.4.4	Abbreviations	13
5.4.5	The derived element names	14

© ISO/IEC 1992

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

ISO/IEC Copyright Office • Case postale 56 • CH-1211 Genève 20 • Switzerland
Printed in Switzerland

6	Encoding the CGM elements	19
6.0.1	Comments on the element codings	19
6.0.2	Defaults and parameter range constraints	19
6.0.3	Allowable productions in clear text metafiles	19
6.1	Encoding delimiter elements	19
6.2	Encoding metafile descriptor elements	20
6.3	Encoding picture descriptor elements	28
6.4	Encoding control elements	31
6.5	Encoding graphical primitive elements	33
6.6	Encoding attribute elements	41
6.7	Encoding escape elements	48
6.8	Encoding external elements	49
6.9	Encoding segment control and segment attribute elements	49
7	Clear text encoding defaults	53
8	Clear text encoding conformance	54
A	Clear text encoding-dependent formal grammar	55
B	Clear text encoding example	56

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 28632-4:1997

<https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

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. 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.

International Standard ISO/IEC 8632-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

This second edition cancels and replaces the first edition (ISO 8632-4:1987), which has been technically revised.

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 2: Character encoding*
- Part 3: Binary encoding*
- Part 4: Clear text encoding*

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

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

ISO/IEC 8632-4:1992 (E)

Introduction

Relationship to other International Standards

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, 4.12.)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 28632-4:1997](https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997)

<https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

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

Part 4 :

Clear text encoding

iTeh STANDARD PREVIEW (standards.iteh.ai)

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.

ISO/IEC 8632-4:1992 (E)

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 8632. At the time of publication, the editions indicated were valid. All standards are subject to revision, and 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 standards listed below. Members of IEC and ISO 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.*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 28632-4:1997](https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997)

<https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

3 Notational conventions

Unbracketed strings are terminals of this grammar. They appear in valid Clear Text data streams exactly as indicated in the specifications of this part, except for allowable variations on case and null characters described below.

Bracketed strings are either non-terminals (with further productions given), character symbol names (such as COMMA), or parameters of the CGM element in the form <x:y> (see ISO/IEC 8632-1 for further explanation of these items).

"::=" is read as "becomes" or "is realized as".

<...>*	= star closure (0 or more occurrences).
<...>+	= plus closure (1 or more occurrences).
<...>0	= optional (exactly 0 or 1 occurrences).
<x:y>	= parameter type x with meaning y
<x y>	= exactly one of x or y
{...}	= a comment (not part of the production)
<...>(n)	= exactly n occurrences, n=0,1,2,...

SPACES are used for readability in the grammar description; SPACES in the actual metafile are indicated through the separator productions given below.

The metasymbols used in describing the grammar do not appear in the actual metafile.

[SIST EN 28632-4:1997](https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997)
<https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

4 Entering and leaving the metafile environment

4.1 Generic clear text and instantiations

The Clear Text Encoding is described in a generic fashion that permits it to be used with any character set capable of representing those characters enumerated in the Character Repertoire (see part 1, 4.7.3.2). An instantiation of the Clear Text Encoding is specified by defining the character set and coding technique to be used (for example, standard national character sets based on ISO/IEC 646, non-standard character sets such as EBCDIC, etc).

It is recommended that an instantiation of the Clear Text Encoding bound to the standard national character set based on ISO/IEC 646 be used in order to maximize portability of Clear Text metafiles between diverse systems. This also provides an encoding which can be incorporated into an ISO 2022 text environment as a complete code, to permit intermixing of text and graphics for applications which place a high priority on human readability.

4.2 Implicitly entering the metafile environment

The Clear Text coding environment may be entered implicitly by agreement between the interchanging parties. This is suitable only if there is not to be any interchange with services using other coding techniques, and if it is known by prior agreement which instantiation of the syntax is being used.

4.3 Designating and invoking the CGM coding environment from ISO 2022

For interchange with services using the code extension techniques of ISO 2022, the (standard national version) ISO/IEC 646 instantiation of the CGM Clear Text Encoding may be designated and invoked from the ISO 2022 environment by the following escape sequence:

ESC 2/5 F

<https://standards.iteh.ai/catalog/standards/sist/7a600d12-0800-4961-91ab-a0371fa1feda/sist-en-28632-4-1997>

where ESC is the bit combination 1/11, and F refers to a bit combination that will be assigned by the ISO Registration Authority for ISO 2375.

The first bit combination occurring after this escape sequence will then represent the beginning of a CGM metafile element or one of the "soft separators" or "null characters" defined below.

The following escape sequence may be used to return to the ISO 2022 coding environment:

ESC 2/5 4/0

This not only returns to the ISO 2022 coding environment, but also restores the designation and invocation of coded character sets to the state that existed prior to entering the ISO/IEC 646 CGM coding environment with the ESC 2/5 F sequence. (The terms "designation" and "invocation" are defined in ISO 2022.)

It is permissible to make transitions between ISO 2022 and the metafile environment between pictures in the metafile as well as between metafiles. The state of the metafile interpreter and the state of the ISO 2022 environment are maintained separately and not stacked. The state of the metafile interpreter before BEGIN METAFILE or after END METAFILE is undefined, and sending a picture without a preceding BEGIN METAFILE and metafile descriptor is nonconforming interchange.

5 Metafile format

A metafile in the Clear Text Encoding consists of a stream of characters forming a series of elements, each of which starts with an element name and ends with one of the element delimiters, either the SLASH character (also known as SLANT or SOLIDUS) or the SEMICOLON character. These characters do not act as element delimiters when occurring within the bounds of a string parameter, as defined below.

5.1 Character repertoire

In order to achieve objective (e) of sub-clause 0.2, the character repertoire of the Clear Text Encoding will be limited to those characters enumerated below, except for string parameters, which may contain any characters from the repertoire described in 4.7.3.2 ISO/IEC 8632-1.

- Upper-case characters:
"A", "B", "C", "D", "E", "F", "G", "H", "I",
"J", "K", "L", "M", "N", "O", "P", "Q", "R",
"S", "T", "U", "V", "W", "X", "Y", "Z"
- Lower-case characters:
"a", "b", "c", "d", "e", "f", "g", "h", "i",
"j", "k", "l", "m", "n", "o", "p", "q", "r",
"s", "t", "u", "v", "w", "x", "y", "z"
- Digits:
"0", "1", "2", "3", "4", "5", "6", "7", "8", "9"
- " " (SPACE character)
- "+" (PLUS character)
- "-" (MINUS character)
- "#" (NUMBER SIGN)
- ";" (SEMICOLON character)
- "/" (SLASH, SLANT, or SOLIDUS character)
- "(" (LEFT or OPEN PARENTHESIS character)
- ")" (RIGHT or CLOSE PARENTHESIS character)
- "," (COMMA character)
- "." (DECIMAL POINT or PERIOD character)
- "'" (APOSTROPHE or SINGLE QUOTE character)
- "\"" (DOUBLE QUOTE character)
- "_" (UNDERSCORE character)
- "\$" (DOLLAR SIGN or CURRENCY symbol)
- "%" (PERCENT SIGN character)

Lower-case characters are considered to be the same as upper-case characters, when occurring outside of string parameters. Any combination of lower-case and upper-case characters may be used within an element or enumerated parameter name.

The UNDERSCORE and DOLLAR SIGN symbols are defined as "null characters" within this encoding. They may appear anywhere within the metafile, and are mandated to have no effect on parsing (outside of string parameters). They are available for the generator or editor of the metafile to use in enhancing readability of tokens.

EXAMPLE — The following are all equivalent: `linetype`, `LINETYPE`, `LineType`, `line_type`, `SLINETYPE`, `L_I_N_E_S_T_Y_P_E`; similarly, the following are all equivalent: `123456`, `$123456`, `123_456`, `$123_456`, `$12$34$56`.

Those control characters that are format effectors (BACKSPACE, CARRIAGE RETURN, LINEFEED, NEWLINE, HORIZONTAL TAB, VERTICAL TAB, and FORMFEED) are permitted in the metafile, but